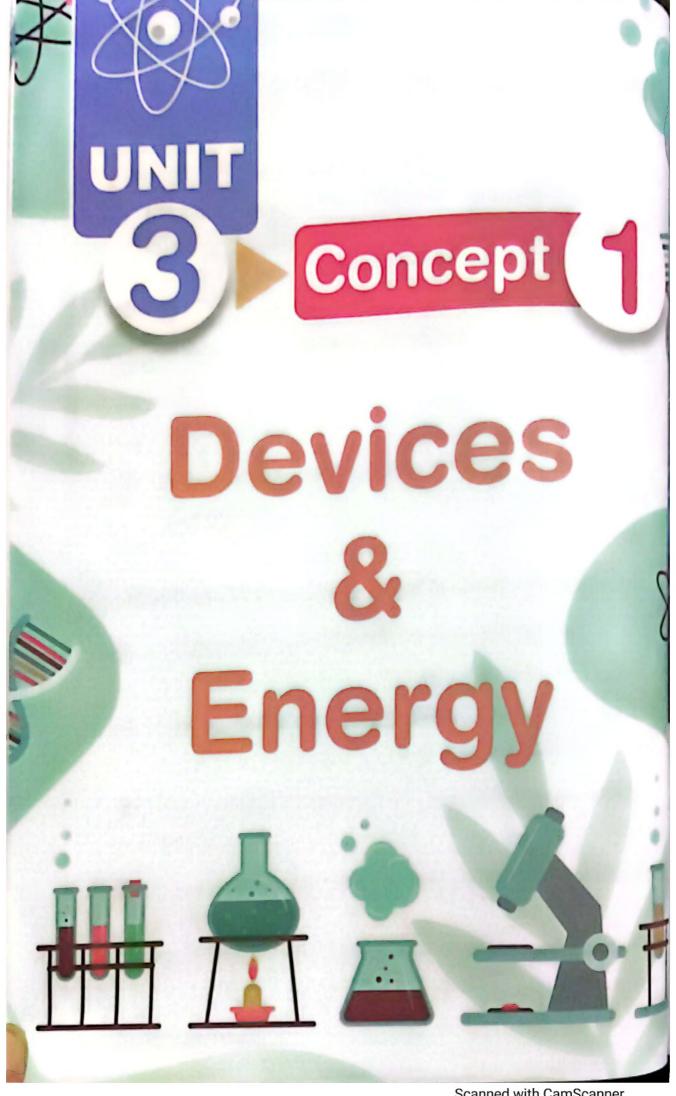
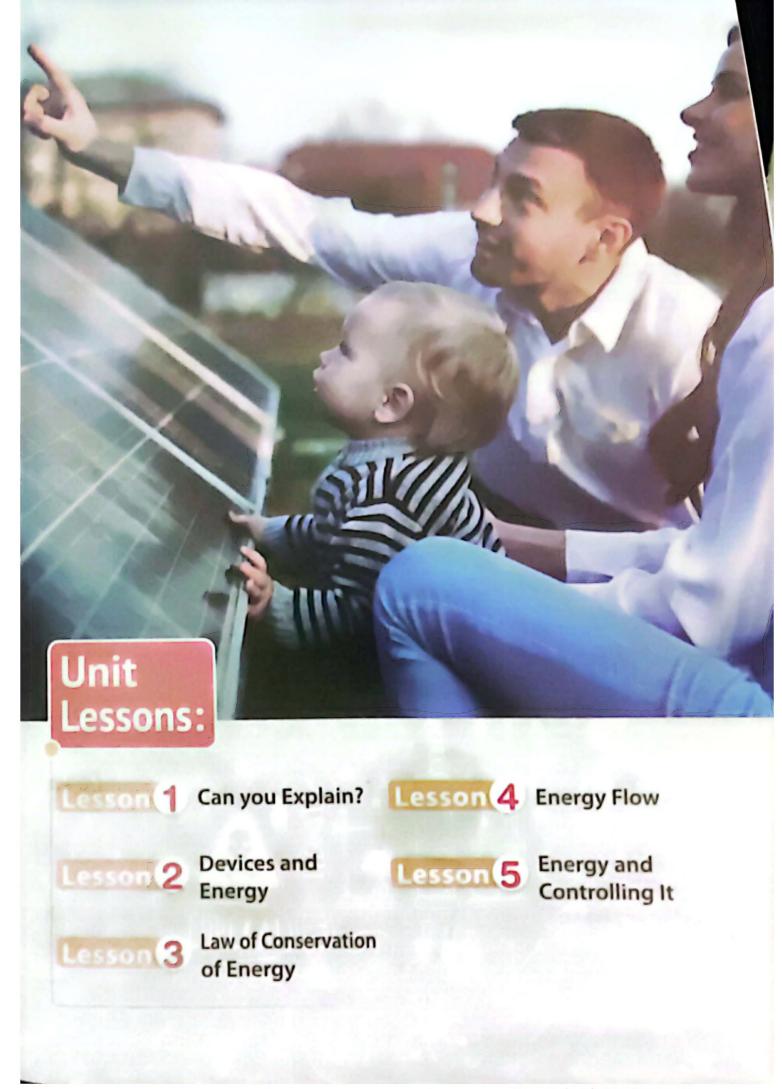


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الشرح؟ Can you Explain?

Energy can be changed from one form to another.

، بمكن أن تتحول الطاقة داخل الأجهزة من صورة الأخرى.

Device		Energy Consumed	Energy Produced
Electric lamp	The state of the s	Electric	Light & heat
Electric iron	0	Electric	Heat
Radio	Fadir O	Electric	Sound
TV		Electric	Sound & light
Cellular phone	1012	Electric	Sound & light

Technology helps us to change solar energy into other forms:

Device	Energy Consumed	Energy Produced
Solar cells	Solar	Electric
Solar heater	Solar	Heat



Fill in the gaps using the following words:

	-			
(e		ric – heat – solar - radio – consumed – produced – s Thechanges electric energy into sounc		
	0	The electric heater consumes energy a energy.		
	3	Electric energy is the energy in a TV.		
	(4)	Light energy is the energy from a TV.		
	6	Solar cells change energy into electric e	nergy.	
2	Pu	t (/) or (X):		
	0	Energy can be changed from one form to another.	()
	2	TV consumes electric energy.	()
	(3)	TV and cellular phones produce light energy only.	()
	4	Solar cells produce heat energy.	()



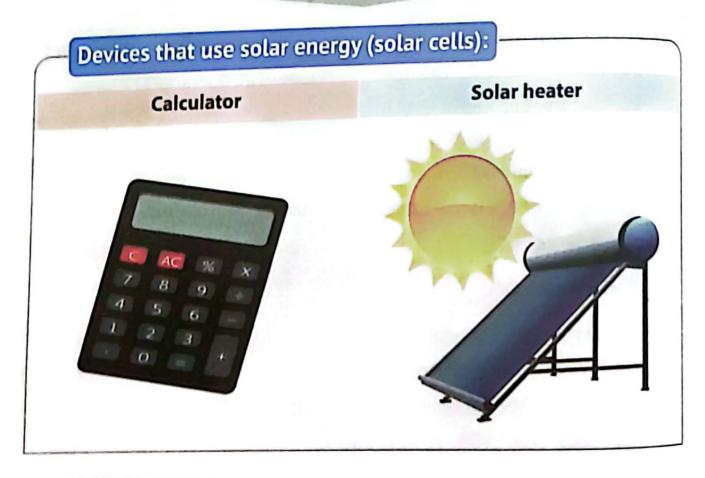
Toy Cars Operated by Remote Controls السيارات اللعبة التي يتم التحكم بها عن بُعد

- Toy cars that are operated by a <u>remote</u> control need energy to operate (move).
- Devices need a source of energy, such as <u>batteries</u> to operate.
- Batteries contain <u>chemical energy</u> that changes to <u>electric energy</u>.

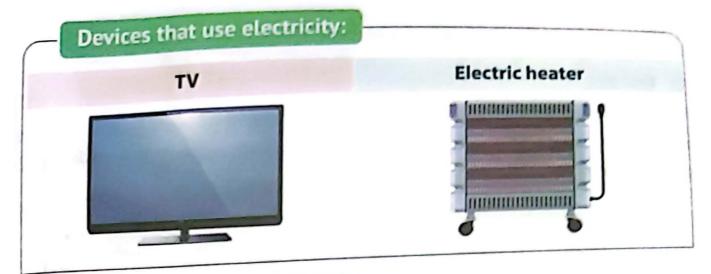


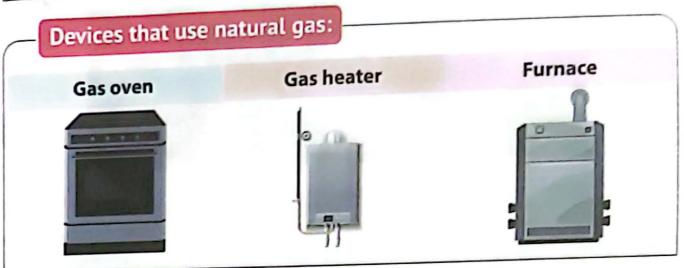
- " تحتاج السيارات اللعبة التي يتم التحكم بها عن بُعد إلى الطاقة لتشغيلها.
 - " تحتاج الأجهزة أيضًا إلى مصدر طاقة كالبطاريات لتشغيلها.
 - 🔐 تحول البطاريات الطاقة الكميائية إلى طاقة كهربية.

مصندر الطاقة - Sources of Energy











Complete the following:

- Toy cars that are operated by a need energy to operate.
- Devices need a source of energy, such as to operate.
- Batteries contain energy that changes to
 energy.
- Calculators use energy to operate.
- Gas ovens use energy to work.
- onsume electric energy.

Science Prim. 4 - Second Term 29

عربة اكتشاف المريخ ~ Mars Exploration Vehicle

- The distance between Earth & Mars is 54 millions km.
- The spacecraft needs more than 6 months to arrive on Mars.
- >> Humans send robots which are operated by remote controls to explore Management
- One of the most famous robots is <u>Curiosity Robot</u>.



- المنافة بين الأرض والمريخ 54 مليون كيلومترا وتحتاج المركبة الفضائية 6 أشهر للوصول لسطح المريخ.
 - أرسل الإتسان روبوتات يتم التحكم بها عن بعد لاكتشاف المريخ ومن أشهرها (كيريوسيتي).

Why is it difficult to obtain electricity to operate robots?

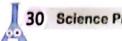
- The robot is very far from any plug, electric charge or markets.
- It is impossible to connect the charger to the rocket plugs.

ماسبب صعوبة الحصول على الكهرباء اللازمة لتشغيل الروبوت؟

- >> لأنها بعيدة جدًّا عن أي قابس أو شاحن كهربي أو متجر بطاريات،
 - الستحيل توصيل سلك شاحن كهربى من أقرب صاروخ لها.

How do robots obtain electricity?

- >>> We can use long-term batteries or solar panels that use solar energy.
 - >> وبالتالي يمكن استخدام: بطاريات طويلة الأمدأو لوحات شمسية (تعمل بالطاقة الشمسية).



30 Science Prim. 4 - Second Term



How do vehicles get the energy they need to move on Mars's surface to explore it

))	The vehicle changes	solar	energy	to	electric,	heat	8	kinetic	energies	to
	operate its sensors to	move	on Mar	s.						

تحول المركبة انطاقة الشمسية إلى طاقة كهربية وحركية وحرارية لتشغيل أجهزة استشعارها لتتحرك
 على سطح المريخ.



1	Co	mplete the following:		
	1	The distance between Earth and Mars is		
	0	A spacecraft needs more than to arrive on M	ars.	
	3	Humans send robots which are operated by to Mars.	explo	ore
	()	Robots on Mars are very far away from or		
	6	Vehicles on Mars change energy into and energies to operate their		,
		to move on Mars.		
2	Pu	t (√) or (X):		
	1	A spacecraft needs about 6 years to arrive on Mars.	()
	2	Robots on Mars move by special long-term batteries.	()
	3	A robot can get energy from the nearest rocket to it.	()
	()	It is possible to connect the charger to the rocket plugs.	()



والطاقة والطاقة Devices and Energy

Energy & the need of devices to it

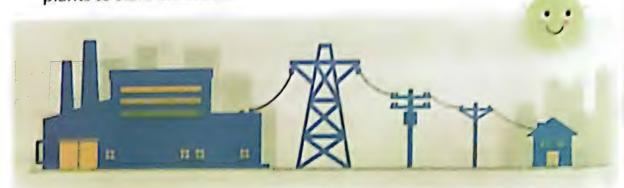
الطاقة وحاجة الأجهرة إليها

- Energy makes devices & toys move and do their functions, such as rolary, in angles, moving their arms or operating their cameras.
- >> The source of energy in devices and toys is the chemical energy stored, batteries.
- When batteries run out, devices stop.
- To make a battery work again,
 - we charge it.
 - we exchange It by a new battery.



سلاسل الطاقة - Energy Chains

- The main source of energy is the <u>Sun</u>.
- Where <u>nuclear</u> energy changes to <u>light</u> energy, which is absorbed by the plants to start the chain.



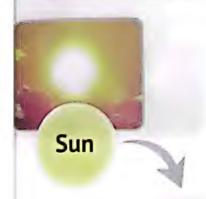


1	Energy makes devices	and	•••••••••••••••••••••••••••••••••••••••
---	-----------------------------	-----	---

- The source of energy in devices and toys is the stored in
- When batteries run out, we must or them.
- is the main source of energy.

Examples of Energy Chains

Energy chain in eating food, such as orange:



Light energy



Chemical energy stored in food





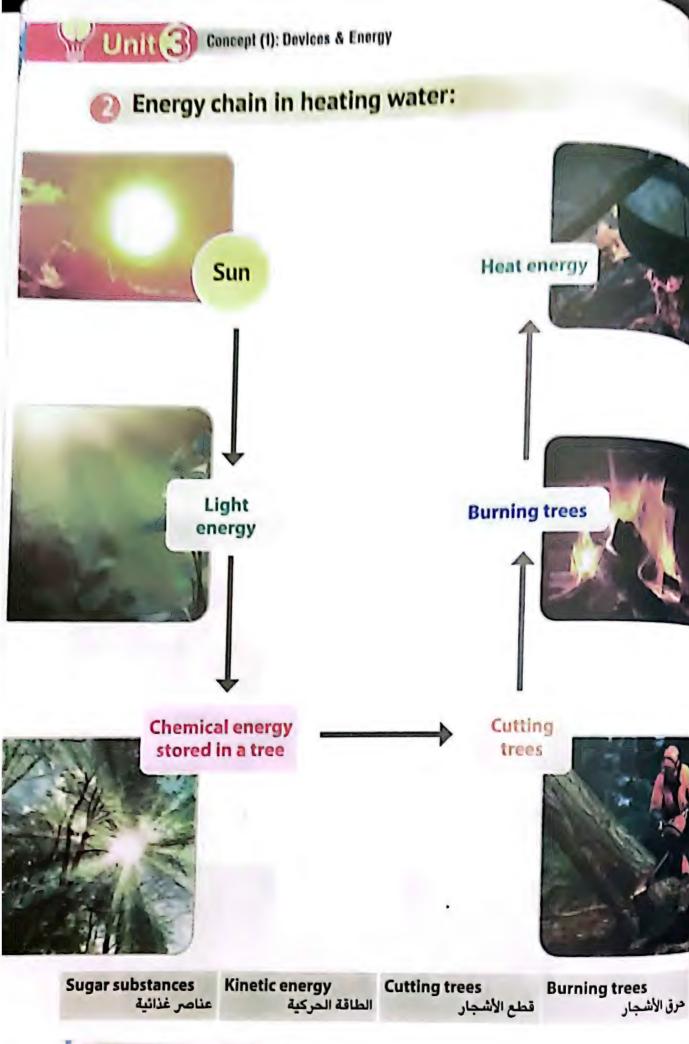
Kinetic energy



Sugar substances which feed humans

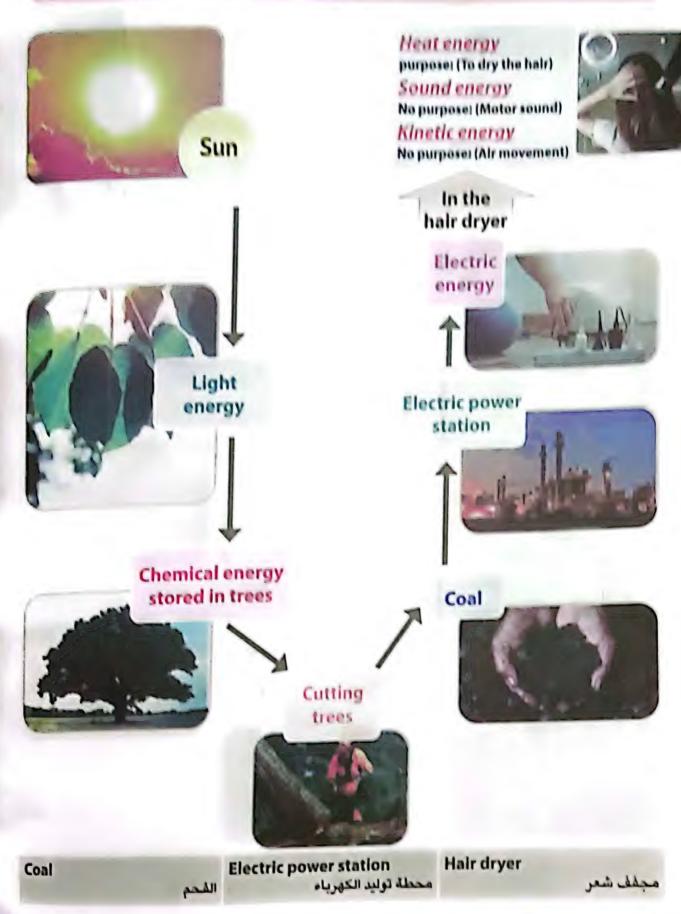


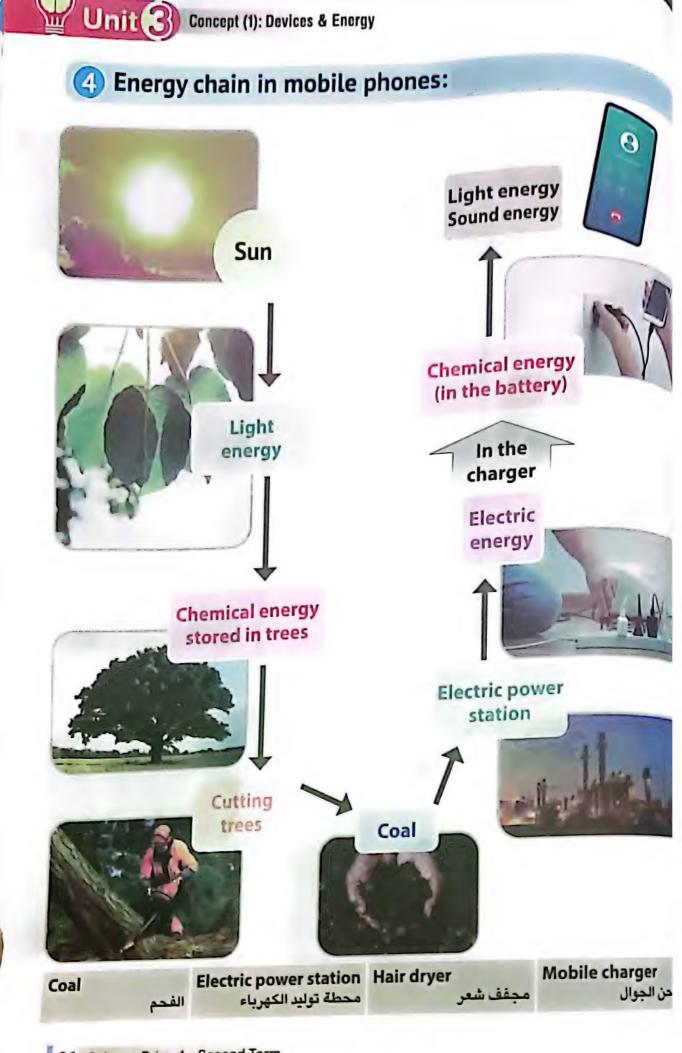
Science Prim. 4 - Second Term 33





Energy chain in a hair dryer:









U		implete the following:		
	1	Any energy chain starts with the		
	0	energy is stored in trees.		
	(3)	Electric power stations consume and produce		
		We can get energy by burning trees.		
	6	, and energies are	produc	ed
		from the hair dryer.		
2	Pu	t (/) or (X):		
	1	Any energy chain ends with the Sun.	()
	2	The chemical energy is stored in trees and batteries.	()
	3	Coal is used in electric power stations to produce heat ene	ergy.()
	0	It is impossible to use any device without the Sun.	()



تحولات الطاقة - Energy Transformations

Device	Function	Energy Inpu	Energy 0
1 Hair Dryer	Drying hair	Electric	Heat Sound Kinetic
Soap Dispenser	Dispensing	Potential	Kinetic
Washing Machine	Washing clothes	Electric	Kinetic
Electric Bulb	Lighting houses	Electric	Light & heat
Motor Engine	Moving things	Electric	Kinetic
6 Dynamo	Obtaining electricity	Kinetic	Electric
Mobile Phone	Making calls	Chemical (in the battery)	Sound & Light



Device		Function	Energy Input Incoming/Used/ Consumed Energy	Energy Output
8 Bike	00	Transporting	Chemical (in the human body)	Kinetic
9 Electric Iron	0	Ironing clothes	Electric	Heat
10 TV		Transferring sound and image	Electric	Sound & Light
11 Fan		Moving the air	Electric	Kinetic
12 Small Watch	THE CO	Knowing time	Chemical	Kinetic
13 Toy Car		Toy for kids	Elastic potential	Kinetic
14 Hand Bell		Getting attention	Kinetic	Sound

Science Prim. 4 - Second Term 39



Complete the following	ng:		
is used to	o make calls, while is	used fo	r
knowing time.			
is used to	get electricity, while	s used to	0
move things.			
An electric fan changenergy.	gesenergy into		
A bike changes	energy into ener	gy.	
6 A small watch changes	energy into	energy	1.
A hand bell changes	energy into	energy	,
A toy car changes	energy into er	nergy.	
and	change electric energy into	o kineti	C
energy.			
2 Put (/) or (/):			
 A hair dryer changes ele 	ctric energy into heat energy on	ly.()
O Dynamo is used to move	things.	()
	ulting energy in electric bulbs.	()
A hand bell is used to know	ow the main four directions.	(





🚺 On driving a bike:



Chemical energy





A part of the kinetic energy changes to heat energy due to the friction between the bike wheels and the road.



In the electric lamp:



Electric energy



Light energy



A part of the electric energy changes to heat energy, so you feel hot when you approach your hand to it.

From the previous:

Law of Conservation of Energy قانون بتقياء التطياقية

Energy is neither created nor destroyed but it changes from one form to another.

الطاقة لا تفنى أو تستحدث من العدم ولكن يمكن تحويلها من صورة لأخرى.

Science Prim. 4 - Second Term



Complete the following:

- On driving a bike, energy changes to energy.
- A part of the kinetic energy of the bike changes to due to the between the road and the bike wheels.
- 6) An electric lamp changes energy into energy.
- When you approach your hand to an electric lamp, you le

2 Put (/) or (X):

- Energy is neither created nor destroyed but it can be changed. (
- The moving bike changes kinetic energy into chemical energy.
- The electric lamp changes electric energy into light energy only,





تدفق الطاقة

Energy Flow

Energy is saved and is neither created nor destroyed.

الطاقة محقوظة ولا يمكن أن تقنى أو تنعدم.

Input Energy Output Energy Heat energy purpose: (To dry the hair) Sound energy No purpose: (Motor sound) Kinetic energy No purpose: (Air movement)





Classify these energies in mobile phones to input and output

(Electric energy – Heat energy – Sound energy – Kinetic energy)

Input Energy	Output Energy

Classify these energies in electric lamps to input and output

(Electric energy – Heat energy – Light energy)

	5, 5m sinergy /
Input Energy	Output Energy
* DOMESTIC STREET, STR	***************************************







علماء البيئة Ecologists

- They check the flow of energy through the food network in the ecosystem because any change in the flow of energy affects the living organisms.
- € يتحقق علماء البيئة من تدفق الطاقة خلال الشبكات الغذائية في النظام البيئي حتى لا تتأثر الكائنات الحية.
- They study the flow of energy in difficult ecosystems, such as the North Pole or the ocean bottom.
 - يقومون بدراسة تدفق الطاقة الغذائية في الأنظمة البيئية الصعبة مثل القطب الشمالي أو قاع المحيط.

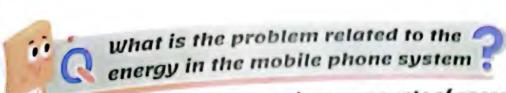


Scanned with CamScanner

2 Engineers المهندسون

- They design solutions for problems, such as how the mobile screen obtains the light energy.
 - المائة المطلوبة لتضيء.





The mobile phone consumes large amounts of energy in a short time.

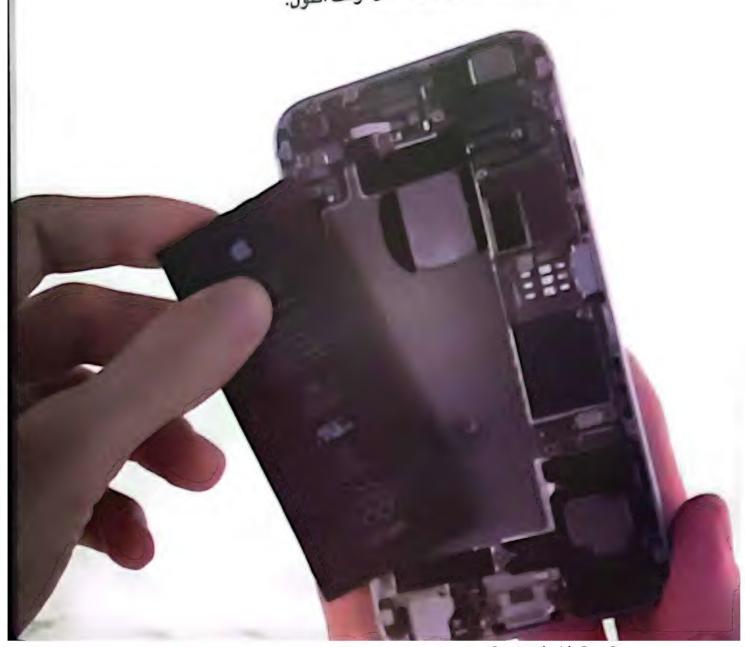
سوال و ما هم مشكلة الطاقة المتعلقة بجهاز الموبايل؟

💘 الموبايل يستهلك طاقة كبيرة في وقت قصير.

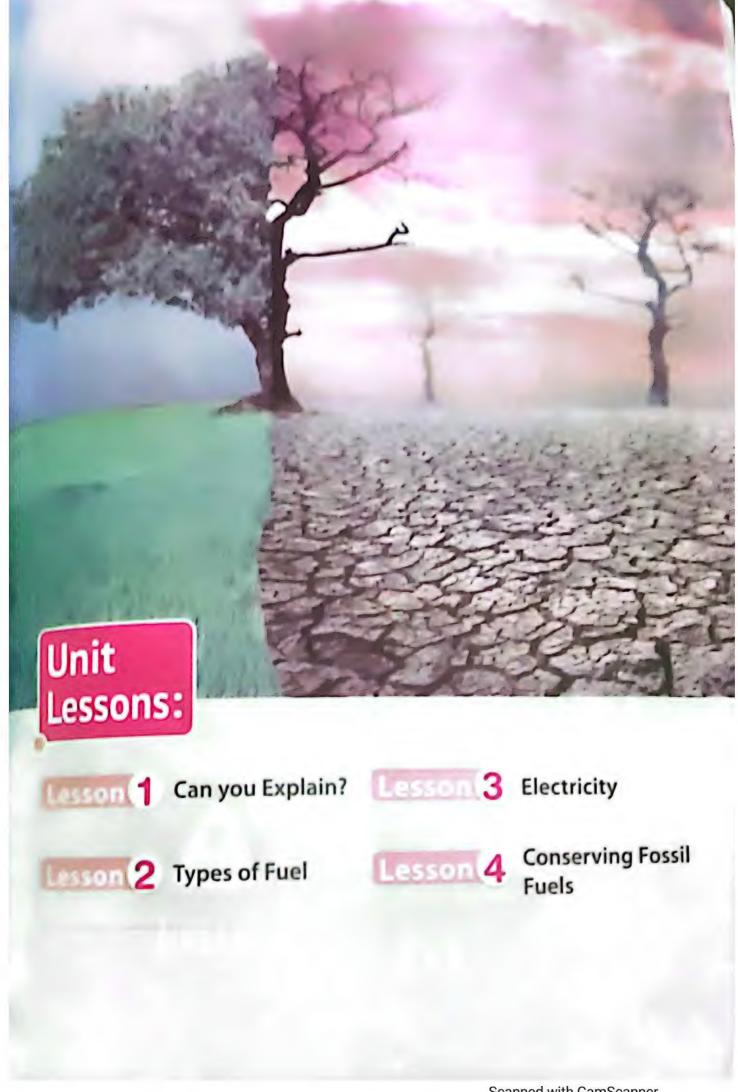


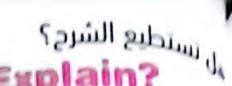
They modify the battery to last for a longer time after charging it. سوال و كيف استطاع المهندسون حل تلك المشكلة؟

🧨 تطوير بطاريات الموبايل لتعمل لوقت أطول.







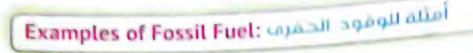


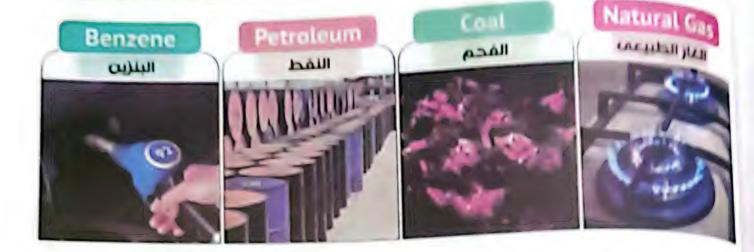




- Any energy chain starts with the Sun.
- The main source of fuel is the Sun.

مداي سلسلة طاقة بالشمس، تُعتبر الشمس للصدر الرئيسي للوقود،





مصدر الوقود الحفري – Source of Fossil Fuel:

>> Fossil fuels are extracted from underground.

پستفرح الوقود الحفرى من باطن الأرض.







Importance of Fossil Fuel: أهمية الوقود الحقرب



>> Cars need

to move.

(food - fuel - water)

How a Car is Operated: کیف تعمل السیارة؟

- Fuel burns inside the car engine.
- 🥨 يحترق الوقود داخل محرك السيارة.
- >> The car engine rotates the wheels of the car.
 - 🕊 يتمكن المحرك من تدوير عجلات السيارة.

If the fuel runs out, the car stops moving. عندما ينفد الوقود، تتوقف السيارة عن الحركة.





1	Complete the following:			
	1	The main source of fuel is the	•	
	2 The fossil fuel is extracted from			
	3	and	are examples,	
		fossil fuel.		
	When the fuel burns inside the car, the car When the fuel runs out, the car			
	6	A car needs to move.	•	
2	Co	rrect the underlined words:	ï	
	1	Any energy chain ends with the Sun.	(
	If the fuel burns inside the car engine, the car will stop.			
			(
	3	Fossil fuels are extracted from mountains.	(
	4	Cars need food to move.	(



أنواع الوقود Types of Fuel

- Burning fuel produces <u>heat energy</u>.
- 🧨 حرق الوقود ينتج عنه طاقة حرارية.
- Wood is the oldest fuel that is still used all over the world.
 - ₹ الخشب هو الوقود الأقدم الذي لا يزال يستخدم في جميع أنحاء العالم.

Types of Fuel





Unit 3 Concept (2). All About 1 de.

1 Biofuel

الوقود الحيوى

)) It is the fuel that is made from the living organisms that can be grown (planted).

مو الوقود المصنوع من الكائنات الحية التي يمكن زراعتها.

- Biofuel is a <u>renewable source of energy</u>.
 - Because it is renewed with the continuous growth of plants,











- >> Ethanol (works as benzene) is made up of grass, corn or wood chips
- >> Charcoal is made up of wood.

Disadvantage of Biofuel

To get it, it requires:

cutting trees & the removal of forests.

So it has a negative effect on the environment.

يتطلب الحصول عليه قطع الأشجار وإزالة الغابات وبالتالى له تأثير سلبى على البيئة.



Trees reach their full height in a period approaching the human life. تصل الأشجار للارتفاع الكامل لها بعد عمر يقترب من عمر الإنسان.



الوقود الحفرى Fossil Fuel

- It is the fuel resulting from the decomposition of the living organisms remains that lived on the earth millions of years ago.
 - هـو الوقـود الناتج مـن تحلـل بقايا الكائنـات الحيــة التي عاشــت على الأرض منـــذ ملايين السلين.
 - Fossil fuel is a non-renewable source of energy.
 - Because it starts to run out as soon as we use it, and the rate of our consumption exceeds the rate of its formation.
 - 🤾 لأنه يبدأ في النفاد بمجرد استهلاكه لأن معدل استهلاكنا له يفوق معدل تكونه.







- Coal is produced from the decomposition of plants and trees remains.
- >>> Petroleum & natural gas are produced from the decomposition of marine organisms and algae.



Advantages of Fossil Fuel:



Disadvantages of Fossil Fuel:

- >>> The amount of it on Earth is limited.
- \gamma كميته محدودة على كوكب الأرض.
- Burning of fossil fuel produces gases that cause:

air pollution & global warming.

So it has a negative effect on the environment.

» حرق الوقود الحفرى يؤدى لانبعاث غازات تؤدى لتلوث الهواء وزيادة الاحتباس الحراري.



Comparison between Fossil Fuel & Biofuel

Point of Fossil Fuel **Biofuel** Comparison It is the fuel that is made It is the fuel resulting from the decomposition from the living organisms of the living organisms that can be grown Definition remains that lived on the (planted). earth millions of years ago. 1 Wood. 1 Petroleum. 2 Grass. Natural Gas. **Examples** 3 Corn. 3 Benzene. 4 Wood Chips. 4 Coal. 1 Lighting houses. It is a renewable 2 Warming houses. **Advantages** source of energy. 3 Cooking. 4 Operating cars. To get it, it requires: It causes: 1 Air pollution. **Disadvantages** 1 Cutting trees. 2 Global warming. 2 Removal of forests.



		implete the fo	llowing:	
1	C	9.	and	are examples of
	0	fossil fuels.		are examples o
	3	biofuels. Burning of	causes air pol	lution and global warming rgy.
	6		d from the decompo	sition ofan(
	6		nade up of grass, corn	or wood chips.
2	W	hat is meant by	y:	
	0	Fossil Fuel:		an engreekeersterreers and a second a second and a second a second and
				The time will steel steel succession.
	2	Biofuel:		and the state of t
				Or - Interest,





Electricity

الكهرباء

How Fossil Fuel is Formed کیف یتکون الوقود الحفری؟

- The old organism that lived millions of years ago dies.
 - پموت الكائن الحى الذى عاش من ملايين السنين.
- >> These remains are buried under rocks and sediments.
 - 🧨 تدفن بقايا الكائن الحى تحت الصخور والرمال.
- Under the effect of the high temperature and pressure, these remains change into fossil fuel.
 - 🧨 تحت تأثير الحرارة والضغط العالى تتحول تلك البقايا إلى وقود حفرى.

Electricity:

- Electricity is generated by burning petroleum or natural gas in electric power stations
 - تتولد الطاقة الكهربية فى محطات توليد الكهرباء عن طريق حرق الوقود.
- Countries started using renewable energy resources, such as wind energy and hydroelectric energy.
 - بدأت الدول الاهتمام باستخدام مصادر الطاقة المتجددة مثل: الطاقة الكهرومائية وطاقة الرياح.





How is Electricity Generated?



- The petroleum or natural gas is burnt and it produces thermal energy
 - بحترق البترول أو الغاز الطبيعى وينتج عنه طاقة حرارية.
- Thermal (heat) energy is used to heat water and produce steam.
 - نقوم الطاقة الحرارية بتسخين الماء وتحويله لبخار.
- Steam starts to move turbines.
- ببدأ البخار بتحريك التوربينات.
- A dynamo converts kinetic energy in turbines into electric energy.

 قوم الدينامو بتحويل الطاقة الحركية للتوربينات إلى طاقة كهربية.
- >>> Electricity transfers through huge wires to cities.
 تنتقل الطاقة الكهربية عبر الأسلاك إلى المدن.





Environmental Problems in Big Cities المشكلات البيئية في المدن الكبيرة

Reasons of the Increasing Pollution: أسباب زيادة التلوث

- Increasing the amount of burning fuel in factories, cars and airplanes.
 - 🧨 زيادة كمية احتراق الوقود في المصانع والسيارات والطائرات.
- Mixing the pesticides used in farms with the running water of rivers.
 - اختلاط المبيدات الحشرية المستخدمة في المزارع مع مجرى مياه الأنهار.
- Chemical materials used in factories cause air pollution & water pollution.
 - المواد الكيميائية المستخدمة في المصانع تؤدى لتلوث الماء والهواء.







Negative Effects of Air Pollution: أضرار تلوث الهواء

- The exhausts of cars & factories cause:
 - 1 Eye & lung irritation.
 - 2 Damage of tissues of the respiratory system.
- 🧨 تسبب عوادم السيارات:
- تهيج العينين والرئتين.
- 2 تلف أنسجة الجهاز التنفسى.

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Pollution Resulting From Burning Fuel: التلوك الناتج عن حرف الوقود

- >>> Carbon dioxide gas resulting from burning fuel is considered the main reason of:
 - Formation of acidic rains.

2 Global warming.

» يعتبر غاز ثانى أكسيد الكربون الناتج عند احتراق الوقود السبب الرئيسي لـ: 1 تكون الأمطار الحمضية.

2 الاحتباس الحراري.

Acidic Rains الأمطار الحمضية

- Carbon dioxide gas reacts with water vapour forming carbonic acid that causes acidic rains causing:
 - 1 Death of trees.
 - 2 Death of fish.
 - 3 Chemical pollution of soil.
 - 4 Decomposition of some rocks. يتحد غاز ثاني أكسيد الكربون مع بخار الماء مكونًا حمض الكربونيك الذي يسبب:
 - 1 موت الأشجار. 2 موت الأسماك.
 - 3 التلوث الكيميائي للتربة.
 - 4 تحلل بعض أنواع الصخور.



Global Warming الاحتباس الحراري

- Carbon dioxide gas is collected and forms a layer in the atmosphere.
 - منجمع غاز ثانى أكسيد الكربون مكونًا طبقة في الغلاف الجوى.
- The heat is trapped in this layer. and the temperature of the earth rises slowly.

نحس الحرارة في تلك الطبقة مما يؤدي لزيادة درحة حرارة الأرض بيطء.



- >>> The amount of the fossil fuel on Earth is limited.
 - 🧨 كمية الوقود الحفرى محدودة على كوكب الأرض.
 - Because the rate of our consumption exceeds the rate of its formation through millions of years.
 - لأن معدل استهلاكنا له يفوق معدل تكونه عبر ملايين السنين.

How to Reduce the Burning of Fossil Fuel:

- Walking or driving a bike instead of driving cars.
 - المشي وركوب الدراجات بدلًا من ركوب السيارات.
- Using public transportation.
- استخدام وسائل النقل العامة.
- >>> Turning off electric bulbs and electric devices if we don't need them.
- إطفاء المصابيح والأجهزة في حالة عدم الحاجة لها.







- >> The chemical structure of water and petroleum is different.
 - 🧨 يختلف التركيب الكيميائي للماء عن الوقود.

Petroleum:

- Scientists believe that petroleum is formed from the decomposition of old marine organisms called <u>diatom algae</u>.
 - پعتقد العلماء أن سبب تكون البترول هو تحلل مخلوقات بحرية قديمة تسمى طحالب الدياتوم.

Diatom Algae:

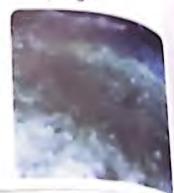
- They are very tiny organisms, smaller than the head of a pin.
- They fall to the bottom of the oceans after death.
- They are covered by layers of rocks and sediments.
- Over millions of years, these remains are transformed by high

temperature and pressure into petroleum oil.

🥒 هي كائنات دقيقة جدًّا لا يزيد حجمها عن رأس الدبوس.

🥨 تستقر بعد موتها في قاع المحيط، وتغطى بطبقات من الصخور والرمال.

🕊 تتحول تلك البقايا بفعل الضغط والحرارة إلى النفط.



Water:

- >> Water is a renewable source of energy. CR
 - Because it is available and hasn't been run out yet.

How to Reduce the Water Consumption:

- We must use water carefully, don't waste it or pollute it.
 - رجب علينا استخدام الماء بحرص وعدم اهداره أو تلويثه.
- Growing plants don't require large amounts of water.

زراعة النباتات التي لا تحتاج إلى رى بكميات كبيرة.

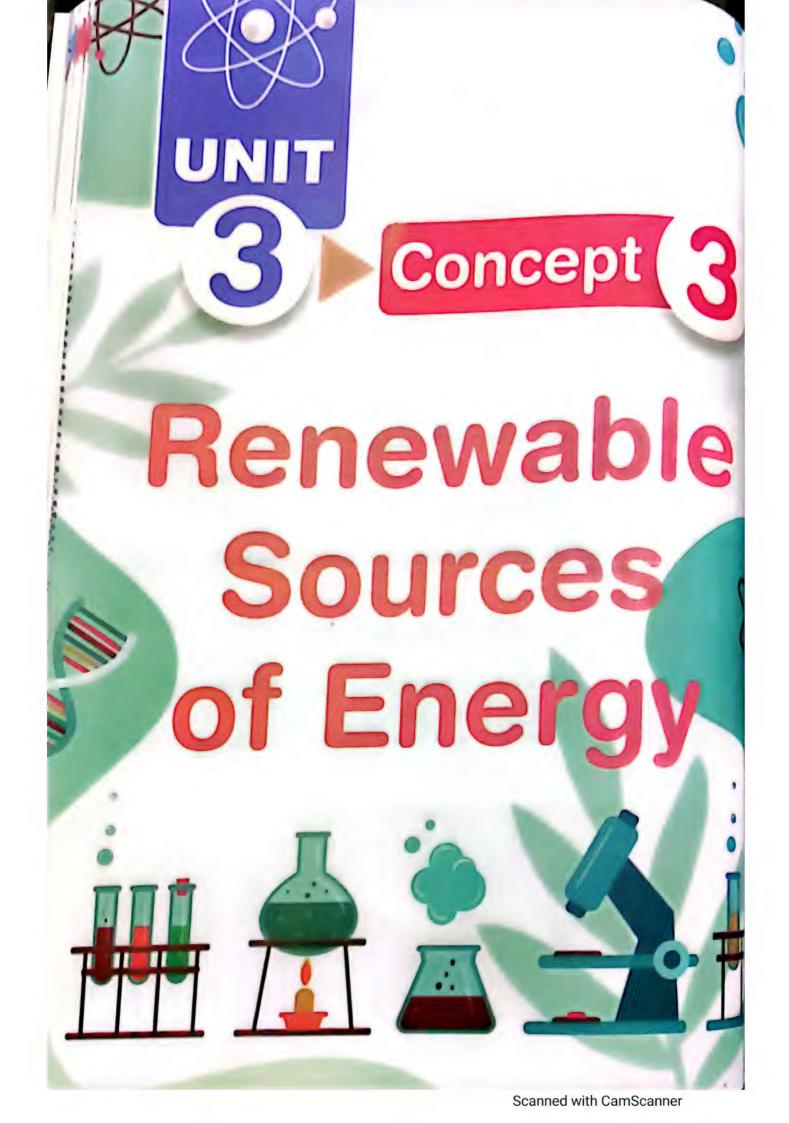


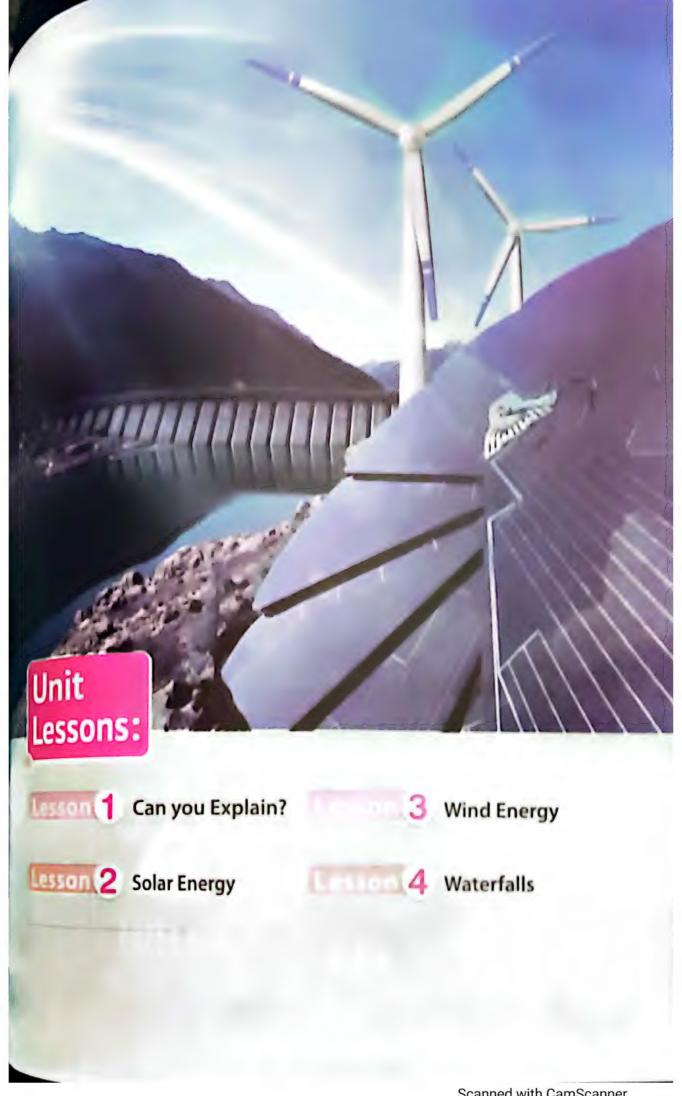


	C	omplete the following:	
	0	Petroleum oil is a source of energy.	
	0	Petroleum is formed from the decomposition of	
	0	rate of its formation through millions of years.	the
2	PL	it (/) or (X):	
	0	Water is a non-renewable source of energy.)
	0	The chemical structure of water and petroleum is different.()
	0	The amount of fossil fuel on Earth is limited. ()
	0	We must light up electric bulbs and electric devices if we	don't
		need them.)
3	H	ow do we reduce burning of fossil fuel?	

4	Ho	ow do we reduce consumption of water?	

		· and a contract of the contra	







الشرح؟ پار**Can you Explain?**

Renewable Sources of Energy: مصادر الطاقة المتجددة

>> The energy that will not run out faster than us consuming it.

الطاقة التي لن تنفد بصورة أسرع من استهلاكنا لها.



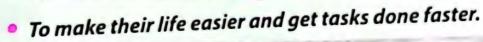






They are used to generate electricity.

>> People use machines. GR





ماندواد الشمسية : Solar Panels

They are used to light up street bulbs in cities.



Windmill

Wind moves the windmill blades. تحرك الرياح شفرات الطاحونة الهوالية



. The internal parts of a mill move and grind grains.

تتحرك الأجزاء الداخلية للطاحونة الهوائية وتطحن الحبوب لصناعة الخبز

Watermill

Water moves the watermill blades.

تحرك الرياح سفرات الطاحونة المائية.



 Kinetic energy transfers to another windmill and it grinds grains.

تنتقل طاقة الحركة للطاحونة الهوائية فتطحن الحبوب.

- The number of blades in a modern windmill is less than the old windmills.
 - 🧨 عدد شفرات الطاحونة الحديثة أقل من القديمة.
- Amodern windmill is taller than an old windmill.

الطاحونة الحديثة أطول من الطاحونة القديمة.

Modern windmills are used in:

Old windmills are used in:

Importance: Low cost and they work without electricity.

Contacht (c). Hellewallie Sources of Energy

Any device needs a source of energy to be operated.

The source of energy may be renewable or non-renewable.

Device	Figure	Source of Energy	Туре
1 Flashlight		Battery	Non-renewable
Petroleum oven		Petroleum	Non-renewable
(3) Gas oven		Natural gas	Non-renewable
4 Fireplace		Coal	Non-renewable
Electric heater		Electricity	Renewable
6 Solar heater		Solar	Renewable





	Fill	in the gaps using the following words:
		(grains – taller – shorter – more – less – solar oven – electric oven – gas oven – petroleum oven)
	0	energy. depend on renewable sources of
	0	of energy.
	0	The number of blades in a modern windmill is than the old windmills.
	4	A modern windmill is than an old windmill.
	6	windmills are used to grind
2	W	hat is meant by:
6		Renewable Sources of Energy:
ด	Co	mplete the following table:

Device	Energy Source	Energy Source Type
Flashlight		
Fireplace		
Electric heater		
Solar heater		



Solar Energy

منسمساا فر

The Sun:

Structure of the Sun تركيب الشمس

- >> Sun surface isn't solid as the Moon.
 - مطح الشمس ليس صلبًا مثل سطح القمر.
- Sun consists of different gases, such as hydrogen and helium.

 العديد من الغازات كالهيدروجين والهيليوم.
- >>> The surface of the Sun is called <u>"photosphere"</u>.

 ه بطلق على سطح الشمس «الفلاف الضوئي».

Photosphere: الغلاف الضوئب للشمس

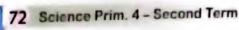
- It is a gas region at the edge of the Sun that emits light and heat.
 - هى منطقة الغازات الموجودة على سطح الشمس والتى ينبعث منها الضوء والحرارة.



Importance of the Sun:

- Sun provides us with <u>light</u> and <u>heat</u>.
- Plants need sunlight to grow.









What will happen when:

Absence of the Sun (without Sun).

- plants will wither and die.
 - 2 Animals that feed on plants will die.
 - J Life disappears on the earth.
 - 🥨 تموت الحيوانات التي تتغذي على النباتات.



- 💦 تذبل النباتات وتموت.
- ₹ تختفي الحياة على الأرض.

A If you look directly to the sun for a long time.

your eyes will be damaged.

🦧 إذا نظرت للشمس لفترة طويلة فقد تتضرر عيناك.



How does the Sun produce heat energy? كيف تنتج الشمس طاقة حرارية؟

) Sun is a star that consists of different gases, such as hydrogen and helium. 🦧 الشمس نجم يحتوى على العديد من الغازات كالهيدروجين والهيليوم.

When hydrogen reacts with helium, a great amount of energy is produced. 🧨 عندما يتفاعل غازا الهيدروجين والهيليوم ينتج منهما طاقة عالية.

)) Heat and light energies transfer through space in the form of waves to reach Earth. تنتقل الطاقة الحرارية والضوئية من الفضاء للأرض على شكل موجات.

Sunrays are called radiant energy (radioactivity). يطلق على أشعة الشمس: الاشعاع أو الطاقة الاشعاعية

>> We feel the warmth of the sun at night. @[

 Because the atmosphere envelope, water and soll absorb heat energy from the sun.

ne sun. نشعر بدفء الشمس خلال الليل. ﴿ إِنْ الغلاف الجوى والمياه والثربة يمتصون الحرارة من الشمس. • إِنْ الغلاف الجوى والمياه والثربة يمتصون الحرارة من الشمس.



(Complete the following:	
	Sun provides us with and and	energies,
	Without the Sun, plants	
	Sunrays are called	
	The Sun consists of different gases, such as	and
	The surface of the Sun is called	
2	What will happen when:	
	1 You look directly to the sun.	1
	O Absence of the Sun.	,
3)	What is meant by:	
	- Photosphere:	
74	A. Salaman Brim A. Sanand Torm	



الطاقة الشمسية Solar Energy

Solar Energy

It is the energy produced from the Sun.

Importance of Solar Energy:

Greenhouse:

planting inside greenhouses.

الزراعة في الصوب الزراعية

It helps farmers in planting crops that need hot weather in winter.

تساعد المزارعين على زراعة محاصيل تحتاج مناخ دافئ في فصل الشتاء.



-) It allows the sun rays to pass through it.
- The heat energy of the sun warms the internal part of the greenhouse.
 - تسمح لأشعة الشمس بالمرور من خلالها.
 - تعمل الطاقة الحرارية للشمس على تدفئة الجزء الداخلي من الصوبة.











ندفلة المنازل .Warming houses

By placing large windows on the walls that face the sun.

> 🧨 بوضع نوافذ كبيرة على الحوائط المواجهة للشمس.





d Cooking.

الطهي

Curved mirrors are used to direct the sunrays towards the cooking pans.

> 🧨 تستخدم المرايـــا المنحنية لتوجيه أشعة الشمس لأوانسي الطهي لطهى الطعام.

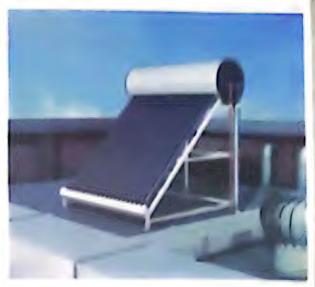




آسخين الماء . Heating water

- A solar heater is placed at the top of buildings.
- The water is heated when it passes through its tube.
- The hot water is stored in a hot water tank.





- ₹ توضع الألواح الشمسية على أسطح المنازل.
- يتم تسخين الماء من خلال مروره بتلك الأنابيب.
 - 🕊 يتم تخزين الماء في خزان ماء ساخن.

الألواح الشمسية - Solar Panels

Structure:

A solar panel consists of a large number of small solar cells.

Idea:

It changes solar energy into electric or heat energies.

Importance:

- It is used in generating electricity for lighting houses & streets.
- It stores electric energy in the batteries.



Calculators:

They consist of batteries provided by small solar cells.

تتكون من بطاريات مزودة بخلايا شمسية صغيرة.

Science Prim. 4 - Second Term 77



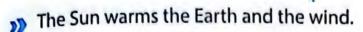
n c	omplete the following:	
0	is the energy produced from	n the Sun.
0	helps farmers in planting cro	ps that need hot _{Weલેણ}
(3)	in winter. The output energies in solar panels are	&
	The input energy in calculators is	
(5)	Solar panels consist of	
2 w	hat is meant by:	
•	Solar Energy:	
2	Solar Panels:	
3	Greenhouse:	





Wind Energy

طاقة الرياح



🔐 تدفئ الشمس الكرة الأرضية و الرياح،

>>> Solar energy causes air movements and wind blowing.

>> تتسبب الطاقة الشمسية في حركة الهواء وهبوب الرياح.

>> The wind rotates the blades of windmills.

🕊 تقوم الرياح بتدوير شفرات الطواحين الهوائية.

>> The dynamo changes kinetic energy into electric energy.

🕊 يقوم الدينامو بتحويل الطاقة الحركية إلى طاقة كهربية.

Electric energy transfers through huge wires towards cities to light houses and streets.

🧨 تنتقل الكهرباء عن طريق أسلاك ضخمة إلى المدن لإنارة المنازل والشوارع.



Lighting houses and streets



How to Design an Effective Turbine:

ربن تصمم توربینًا فعالًا؟ پنی تصمم توربینًا



- The blades of the windmill must be light, tall and curved.
-)) It is better to decrease the number of the blades of the turbine. For example: 3 blades are better than 4 blades.
 - الد أن تكون شفرات التوربين خفيفة الوزن وطويلة ومنحنية.
 - الما قل عدد شفرات التوربين كانت كفاءته أفضل.



- Put (√) or (X):
 - The wind rotates the blades of windmills.
 - A dynamo changes electric energy into kinetic energy.
 - It is better to increase the number of blades of a turbine.
 - The blades of windmills must be light and short.

80 Science Prim. 4 - Second Term





Waterfalls

When the water of rivers falls from high slopes:

potential energy is converted into kinetic energy

🦔 عند سقوط مياه الأنهار من أعلى المنحدرات:

قتحول طاقة الوضع المختزنة في المياه إلى طاقة حركة



Scanned with CamScanner



بوليد الطاقية الخماريية من كلال السدود which increases the gravitational

- The dams stop the flow of water, which increases the gravitational potential energy.
 - المقوم السد بإيقاف سريان المياه مما يؤدى لزيادة طاقة الوضع المختزنة في المياه.
- When water becomes free, it falls on the blades of the turbines, so they rotate.

 الله عند السماح للمياه بالمرور خلال السد، تسقط المياه على شفرات التوربينات مما يؤدى لحركتها.
- The dynamo changes the kinetic energy of the turbines into electric energy.

 ال يقوم الدينامو بتحويل طاقة حركة التوربينات إلى طاقة كهربية.
- Electricity transfers to cities through huge and long wires to light houses.

 ال ننتقل الكهرباء للمدن عن طريق أسلاك عملاقة وطويلة وذلك لإنارة المنازل.



Generating Electricity

Generating Electricity

Using wind

Using waterfalls

Used in windy areas

تستخدم في المناطق عاصفة الرياح Generating Electricity

Clean Sources

Renewable sources /

Used in dams & rivers

تستخدم فى الأنهار والسدود



	Complete	the	following:
--	----------	-----	------------

0	When water falls from a slope, it	s ch	anges to
	AALIELI AAGICI TOTTO		

- Dams increase the energy of water.
- The dynamo changes theenergy of the turbines into energy.

Project



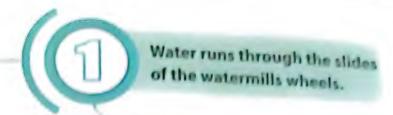
Water as a Source of Energy

The great amount of water running in rivers or falling from waterfalls can be used to move watermills to generate energy.

الكمية الهائلة من الماء المتدفق عبر الأنهار وأعلى الشلالات يمكن استخدامها لتحريك طواحين الماء وتوليد الطاقة.

الطاقة الكهرومائية Hydroelectric Energy

- It is the force of moving water to rotate a huge turbine to generate electricity.
 - 🐠 هي قوة تحريك المياه لتدوير توربين كبير لتوليد الكهرباء.



How it works:

The wheel of the watermill rotates.



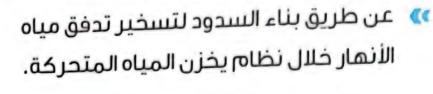


Energy is produced and it is used to move devices.

- یتدفق الماء من خلال الشرائح الموجودة على عجلة طواحین المیاه فتدور العجلة وتنتج الطاقة التی تستخدم فی تحریك الآلات والمعدات.
 - كيف استطاع العلماء والمهندسون تسخير قوة الماء؟

By building dams. To make use of the running water.

By a system which stores the energy of the moving water.





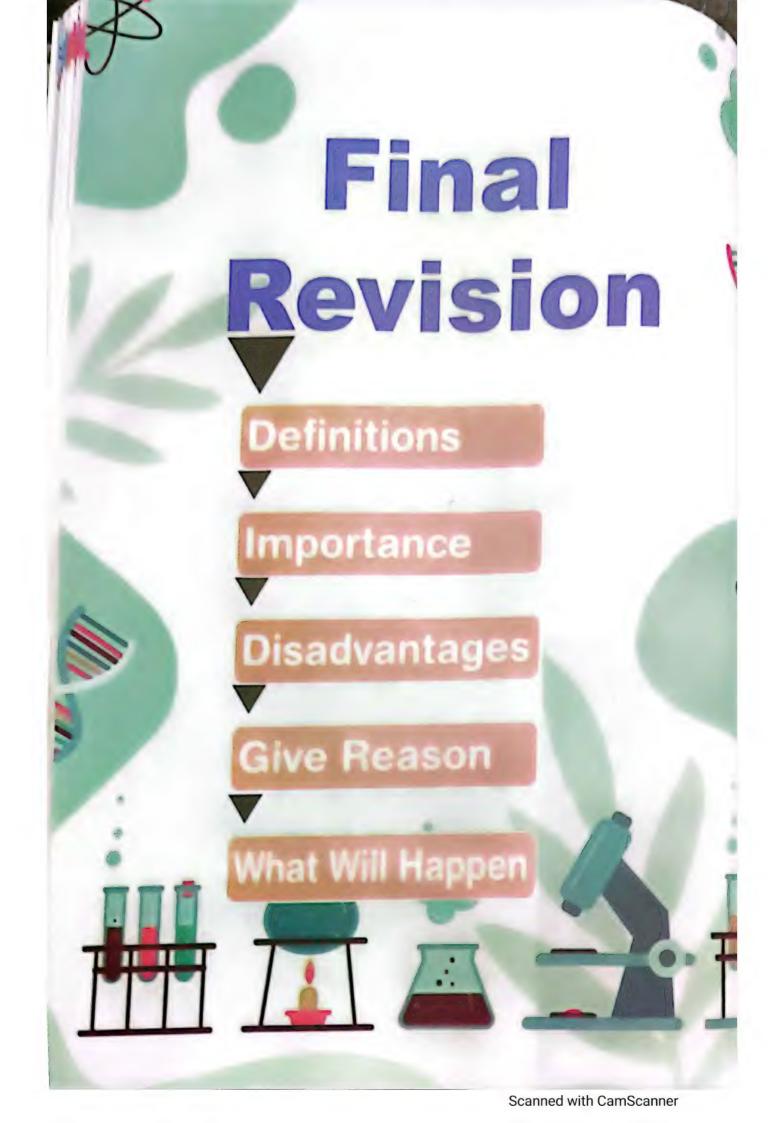
Advantage of Dams

Dams can generate clean energy. تولد السدود الكثير من الطاقة النظيفة.

Disadvantage of Dams

Dams affect the ecosystem when the water path changes.

تؤثر في النظام البيئي وذلك لتغير مسار المياه.



Definitions

Unit@ Concept @ Lesson @

Fuel-powered cars	They are cars that need gas stations and cause climate changes.		
Electric cars	They are cars that have batteries that need to be charged.		
Solar cars	They are cars operated by solar energy and they don't need fuel or electricity.		

Unit@ Concept 4

Wrecking ball	It is a heavy steel ball swinging on a cable and it is used to knock down parts of buildings.
Seatbelt	A safety equipment in cars which is used to keep the driver body from moving forward during collision.
Airbag	A safety equipment in cars that absorbs the energy of the car during collision.
Collision	It is the moment of the crash of two objects together
Electric lamp	A device used to light houses and it changes the electric energy into light and heat energies.
Electric iron	A device used to iron clothes and it changes electric energy into heat energy.



Electric heater	A device used in warming houses and it changes the electric energy into heat energy.
Cellular phone	A device used to make calls and it changes electric energy into sound and light energies.
Radio	A device that changes electric energy into sound energy.
TV	A device used to transfer sound and image and it changes electric energy into light and sound energies.
Solar cell	A device that changes solar energy into electric energy.
Solar heater	A device that changes solar energy into heat energy.
Hair dryer	A device used for drying the hair and it changes electric energy into heat, kinetic and sound energies.
Washing machine	A device used to wash clothes and it changes electric energy into kinetic energy.
Motor engine	A device used to move things and it changes the electric energy into kinetic energy.
Dynamo	A device used to generate electricity and it changes the kinetic energy into electric energy.
Bike	A device used for transporting and it changes the chemical energy inside the human body into kinetic energy.
Fan	A device used for moving air and it changes the electric energy into kinetic energy.

Small watch	A device used for knowing time and it changes the chemical energy into kinetic energy.
Law of Conservation of Energy	Energy is neither created nor destroyed but it changes from one form to another.
Ecologist	They check the flow of energy through food networks in the ecosystem.
Engineers	They design solutions for problems, such as how the mobile screen obtains the light energy.
Biofuel	It is the fuel that is made from the living organisms that can be grown (planted).
Fossil fuel	It is the fuel resulting from the decomposition of the living organisms remains that lived on the earth millions of years ago.
Diatom algae	They are very tiny organisms, smaller than the head of a pin and they were transformed by high temperature and pressure into petroleum oil.
Renewable source of energy	It is the energy that will not run out faster than us consuming it.
Non-renewable source of energy	It is the energy that will run out faster than us consuming it.
Photosphere	It is a gas region at the edge of the Sun that emits light and heat.



Solar energy	It is the energy produced from the sun.
Greenhouse	It helps farmers in planting crops that need hot weather in winter.
Solar panels	They consist of a large number of small solar cells. It changes solar energy into electric or heat energies.
Hydroelectric energy	It is the force of moving water to rotate a huge turbine to generate electricity.

Importance

Unit 2 Concept 3 Lesson 6

Fuel-powered cars	The amount of energy produced by the fuel is high.
Electric cars	They don't cause climate changes.
Fice	They don't need fuel or electricity.
Solar cars	They don't cause climate changes.
	They are light in weight.

Unit 2 Concept 4

Wrecking ball	It is used to knock down parts of buildings.
Seatbelt	It is used to keep the driver body from moving forward during collision.
Airbag	 It slows the speed of the driver when his body moves forward. It absorbs the energy of the car during collision.



Unit 3 Concept 1

Curiosity Robot	One of the most famous robots that used to explore mars
Hair dryer	It is used for drying the hair.
Washing machine	It is used for washing clothes.
Electric bulb (lamp)	It is used to light up houses.
Dynamo	It is used to operate electricity.
Motor	It is used to move things.
Mobile phone	It is used to make calls.
Electric iron	It is used to iron clothes.
TV	It is used to transfer sound and image
Fan	It is used for moving the air.
Small watch	It is used for knowing time.

Unit 3 Concept 2

Fossil fuel	Lighting houses, warming clothes, cooking and operating cars.
Biofuel	It is a renewable source of energy
Fuel	It is used to operate cars.
Grass, corn and wood chips	They are used to produce ethanol.

Wood	It is used to produce charcoal.
Diatom algae	Over millions of years, these remains are transformed by high temperature and pressure into petroleum oil.

Unit 3 Concept 3

Machines	To make human life easier and get tasks done faster.
Solar panels	1. They are used in generating electricity for lighting houses.
	2. They store electric energy in the batteries.
Windmill	The internal parts of a mill move and grind grains.
Photosphere	It emits light and heat.
Sun	1. Sun provides us with light and heat.
	2. Plants need sunlight to grow up.
Solar energy	1. Planting inside greenhouse.
	2. Operating irrigation machines.
	3. Warming houses.
	4. Cooking.
	5. Heating water.
Dams	They can generate clean energy.
Hydroelectric energy	It is the force of the moving water to rotate a huge turbine to generate electricity.

Disadvantages

Unit 2

Fuel-powered cars	They cause climate changes.
Electric cars	They have batteries that must be charged.
Solar cars	The amount of energy it gets from the sun is smaller than what we get from gasoline or electricity.

Unit 3

	It causes:
Fossil fuel	1. Air pollution.
	2. Global warming.
Biofuel	To get it, it requires:
	1. Cutting trees.
	2. Removal of forests.
	They affect the ecosystem when the water path
Dams	changes.

Give Reason

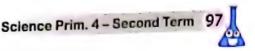
- 1. Fuel-powered cars have some disadvantages.
 - Because they cause air pollution and climate changes.
- 2. Electric cars have some disadvantages.
 - Because they have batteries that must be charged.
- 3. Solar cars have some disadvantages.
 - The amount of energy a solar car gets from the sun is less than what we get from gasoline or electricity.
- 4. Mechanical engineers designed solar vehicles that are light in weight.
 - To make these vehicles consume less amount of energy
- 5. During collision, a truck causes more damage to the car.
 - Because the truck is a heavy object that has more energy than the car.
- 6. During collision, a fast car causes more damage to the slow car.
 - Because the fast car has more energy than the slow car.
- 7. Construction workers use a wrecking ball.
 - To knock down parts of buildings.
- 8. If the player uses a bat to hit the tennis ball, the speed of the ball will increase in different directions.
 - Because the energy transfers from the bat to the tennis ball.
- 9. Modern cars are provided with a seat belt.
 - To keep the driver's body from moving forward during collision.





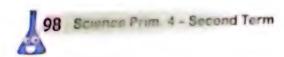
- 10. Modern cars are provided with an airbag.
 - 1. It slows the speed of the driver when his body moves forward.
 - It absorbs the energy of the car during collision.
- 11. When a boy runs fast and hits a traffic sign, he stops moving and the traffic sign vibrates.
 - Because the kinetic energy transfers from the boy to the traffic sign. $S_{0,}$ the traffic sign may vibrate.
- 12. <u>During collision between two moving objects, we hear the sound of crashing.</u>
 - A part of the kinetic energy changes to sound energy during collision.
- 13. A crash investigator uses all scientific laws of motion, force & energy.
 - To solve the puzzle of the collision between two objects.
- 14. A crash investigator asks the two drivers about the collision.
 - To know who caused the accident.
- 15. A crash investigator uses photos & videos.
 - To collect all the needed information about the accident.
- 16. A spacecraft needs more than 6 months to arrive on Mars.
 - Because the distance between Earth & Mars is 54 millions km.
- 17. Humans send robots which are operated by remote controls to Mars.
 - To explore Mars.
- 18. It is difficult to obtain electricity to operate a robot.
 - 1. The robot is very far from any plug, electric charge or markets.
 - 2. It is impossible to connect the charger to the rocket plugs.

- 19. Any energy chain starts with the Sun.
 - . Because the Sun is the main source of energy.
- 20. Energy is saved.
 - Energy is neither created nor destroyed but it changes from one form to another.
- 21. When you touch an electric lamp, you feel hot.
 - Because electric energy changes into light and heat energies.
- 22. Ecologists check the flow of energy through food networks in the ecosystem.
 - Because any change in the flow of energy affects living organisms.
- 23. Biofuel is a renewable source of energy.
 - Because it is renewed with the continuous growth of plants.
- 24. Biofuel has a negative effect on the environment.
 - To get it, it requires cutting trees & the removal of forests.
- 25. Fossil fuel is a non-renewable source of energy.
 - Because it starts to run out as soon as we use it. Also, the rate of our consumption exceeds the rate of its formation.
- 26. The amount of fossil fuel on the earth is limited.
 - Because the rate of our consumption exceeds the rate of its formation through millions of years.
- 27. Fossil fuel has a negative effect on the environment.
 - Burning the fossil fuel produces gases that cause air pollution & global warming.
- 28. Walking or driving a bike is better than driving cars.
 - To reduce the amount of burning fossil fuel.



Final Revision

- 29. Water is a renewable source of energy.
 - Because it is available and hasn't been run out yet.
- 30. We must use water carefully, don't waste it or pollute it.
 - To reduce the consumption of water.
- 31. Solar energy is a renewable source of energy.
 - Because solar energy is the energy that will not run out faster than consuming it.
- 32. People use machines.
 - To make their life easier and get tasks done faster.
- 33. Sun surface isn't solid as the Moon.
 - Because the Sun consists of different gases, such as hydrogen and helium.
- 34. Sun is very important for all the living organisms.
 - Sun provides us with light and heat.
 - 2. Plants need sunlight to grow up.
- 35. We feel the warmth of the sum at night.
 - Because the atmosphere envelope, water and soil absorb heat energy from the sun.
- 36. Greenhouse help farmers in the agricultural field.
 - Because it helps farmers in planting crops that need hot weather in winter.
- 37. Placing large windows on the wall that faces the sun.
 - For warming houses.
- 38. Curved mirrors are used in solar ovens.
 - To direct the sunrays towards the cooking pans to cook food faster.



- 39. Solar heater is placed at the top of buildings,
- . To heat the water when it passes through its tube, then it is stored in a hot water tank
- 40. Solar panels are used in generating electricity for lighting houses & streets.
 - . Because they change solar energy into electric or heat energies.
- 41. Sun is the main source in generating electricity by wind energy
 - . Because the sun warms the earth and the wind. So, solar energy causes air movements and wind blowing and the wind rotates the blades of the windmill.
- 42. Dams are used in generating hydroelectric energy
 - . The dams stop the flow of water which increases the gravitational potential energy.

What Will Happen

- 1. Mechanical engineers designed solar vehicles that are heavy in weigh
 - They will consume a high amount of energy.
- 2. A truck hits a car.
 - The truck will cause more damage to the car because the energy of collision transfers from the truck to the car.
- 3. A fast car hits a slow car.
 - The fast car will cause more damage to the slow car because the energy
 of collision transfers from the fast car to the slow car.
- The player uses a bat to hit the tennis ball.
 - The speed of the ball will increase in different directions.
- During and after collision (concerning the airbag).
 - During collision: The air bag inflates automatically.

After collision: The air bag deflates fast, so the driver can get out of the con

- 6. Two cars collide together.
 - a. Energy transfer occurs.

b. Energy changes occur.

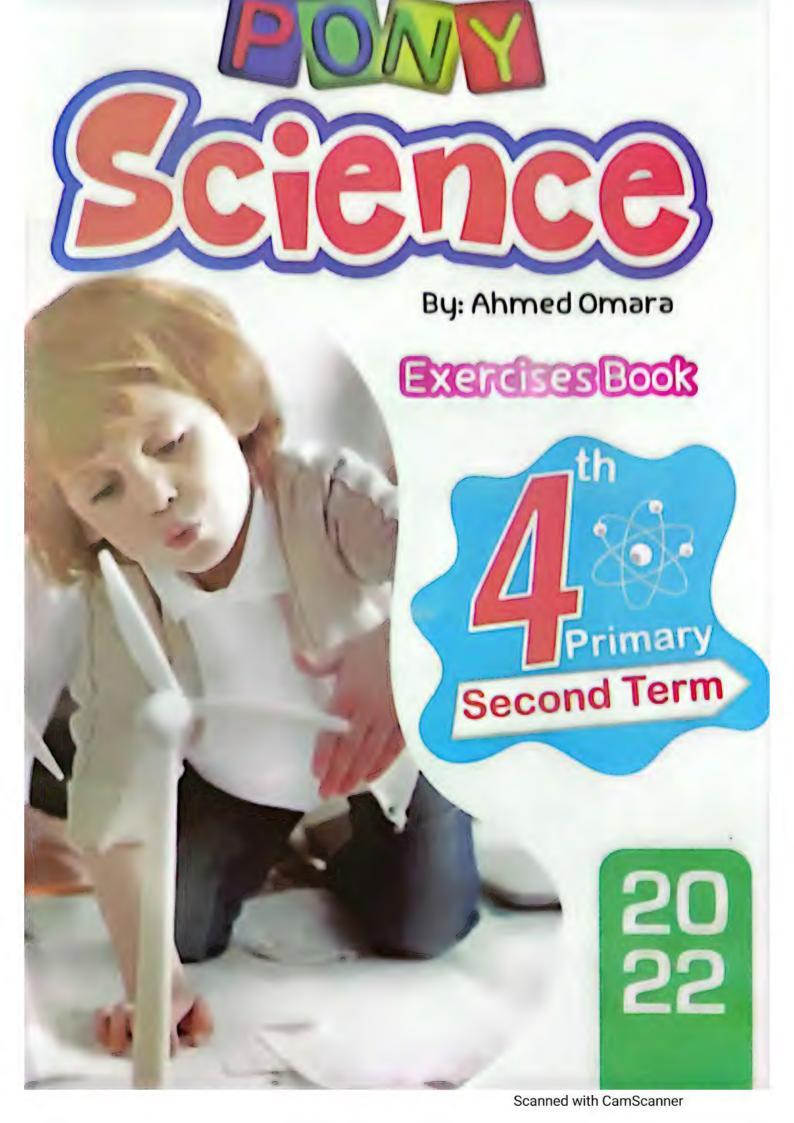
- 7. When a boy runs fast and hits a traffic sign.
 - The boy stops moving forward and he may get injured and the traffic sign may vibrate.
- 8. Two cars moving in the same direction collide together.
 - · Damage will be less severe.

- 9. Two cars moving in the opposite directions collide together.
 - . Damage will be more severe.
- 10. If a bike moving with a high speed hits a person.
 - . The person may get injured only and he/she will survive.
- 11. If a car moving with a high speed hits a person.
 - The person's life may be in danger.
- 12. The height (angle) of the ramp increases (concerning the moving object on it).
 - The speed of the moving object increases.
- 13. A big ball and a small ball sliding on a ramp.
 - The big ball falls faster than the small ball.
- 14. When the ball in Newton's cradle is raised up .
 - The ball stores potential energy and doesn't contain any kinetic energy.
- 15. When you leave the ball of Newton's cradle to fall.
 - The potential energy decreases gradually and is converted into kinetic energy.
- 16. When the ball of Newton's cradle hits the 1st ball next to it.
 - The kinetic energy is transferred to the next ball, then to the rest of the balls.
- 17. When batteries run out.
 - Devices stop, so we must charge it or exchange it.
- 18. <u>On driving a bike.</u>
 - 1. Chemical energy stored in the human body changes into kinetic energy.
 - 2. A part of the kinetic energy changes to heat energy due to the friction between the wheels of the bike and the road.

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- 19. Fuel burns inside the car engine.
 - The car engine rotates the wheels of the car.
- 20. Wind moves the windmill blades.
 - The internal parts of the mill move and grind the grains.
- 21. Water moves the watermill blades.
 - Kinetic energy transfers to another windmill and grind the grains.
- 22. Absence of the Sun (Without the Sun).
 - 1. Plants will wither and die.
 - 2. Animals that feed on plants will die.
 - 3. Life disappears on the earth.
- 23. If you look directly to the sun for a long time.
 - · Your eyes will be damaged.
- 24. When the water of rivers falls from high slopes.
 - Potential energy is converted into kinetic energy.



Contents

Quizes On Unit 2

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On Unit 3

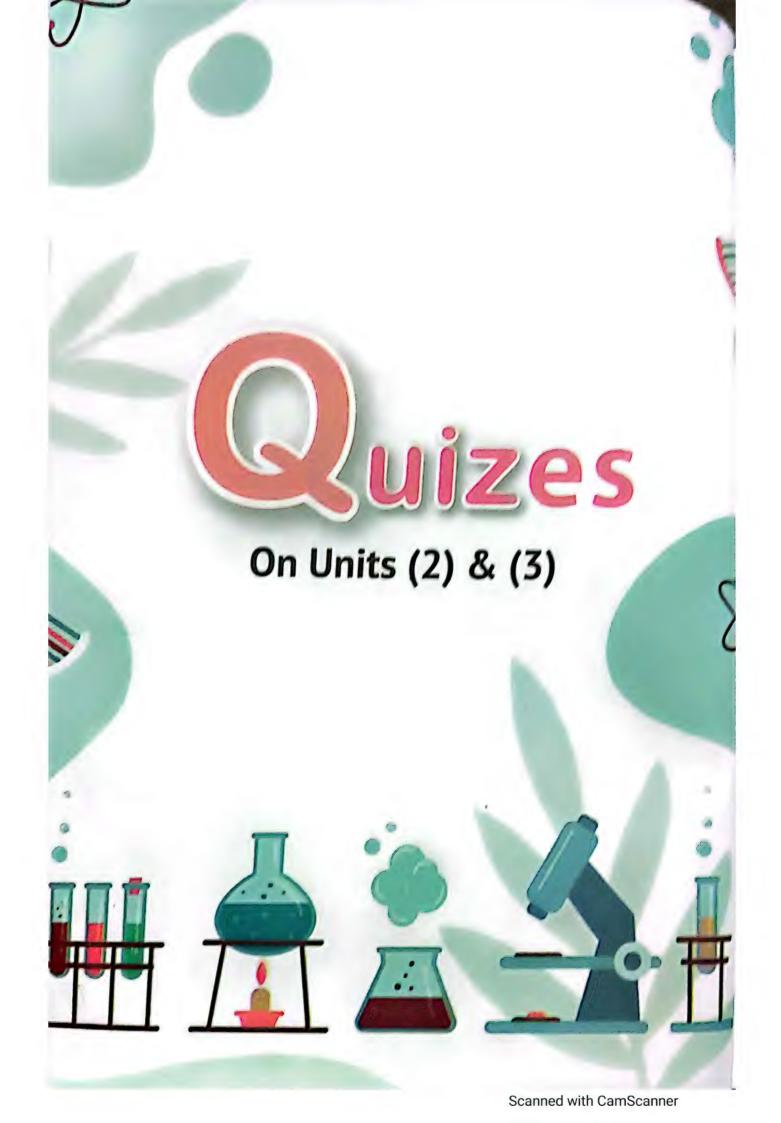
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EModel Exams

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Unit (2) Concept (3) Lesson (6)

d. are heavy in weight

0	cars cause p	pollution to the environment.	
	a. Solar	b. Electric	
	c. Fuel-powered	d. No correct answer	
2	cars don't n	eed fuel.	
	a. Solar	b. Electric	
	c. Fuel-powered	d. a & b	
3	cars are ligh	cars are light in weight.	
	a. Solar	b. Electric	
	c. Fuel-powered	d. No correct answer	
4	Mechanical engineers of	lesigned a vehicle that operates by	
	energy.		
	a. heat	b. sound	
	c. solar	d. kinetic	
6	Electric cars		
	a. need fuel	 b. need charging 	
	c. cause pollution	d. no correct answer	
6	Solar cars		
	a. cause climate changes		
	b. need charging		
	c. are light in weight		



- Which of the following statements is correct?

 - b. The amount of energy we get from fuel is more than the energy
 - c. The amount of energy we get from electricity is equal to h
 - d. The amount of energy we get from fuel is equal to the energy

Put (√) or (X):

- Cars operate using electricity only.
- Fuel-powered cars always need gas stations.
- Electric cars cause climate changes.
- Solar cars are heavy in weight.
- The amount of energy we get from the sun is more than the energy we get from fuel or electricity.
- Fill in the gaps using the following words:

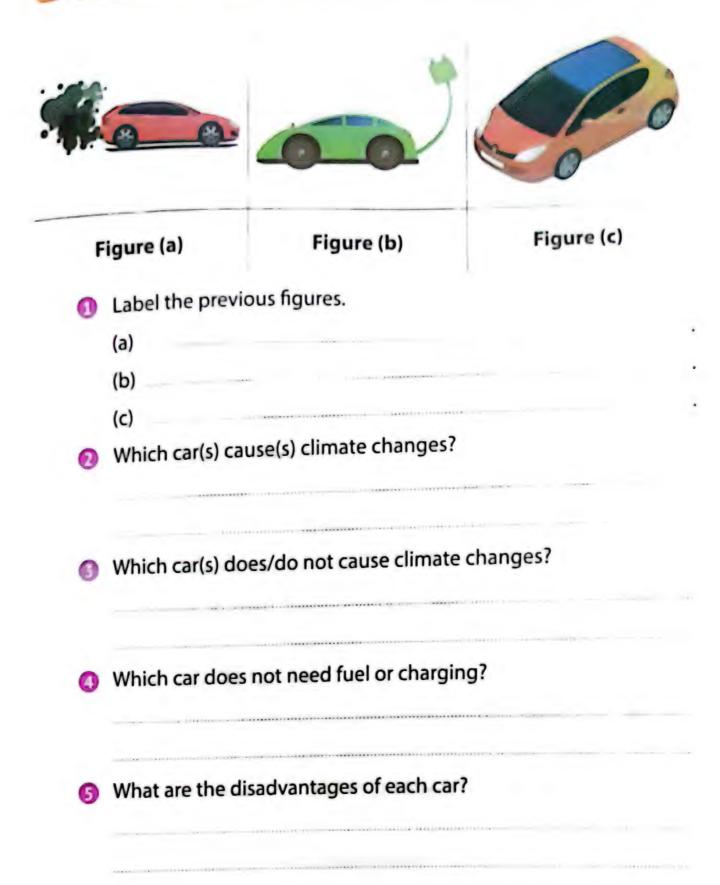
(Solar cars, electric cars, Fuel-powered cars, more , light , heavy , less)

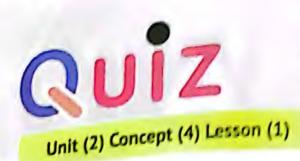
1	need gas stations, while	need to be charge
---	--------------------------	-------------------

- don't need fuel or electricity.
- Solar cars arein weight.
- The amount of energy we get from the sun is the energy we get from fuel.

4

Study the figures, then answer the following questions:





1 Choose the correct answer:

Fast cars cause damage	slow cars,	
a. more than	b. less than	
c. equal to	d. no correct answer	
Light objects cause dama		
a. more than	b. less than	
c. equal to	d. no correct answer	
A train has kinetic energy the car.		
a. more than	b. less than	
c. equal to	d. no correct answer	
Light objects always have energy.		
a. low	b. high	
c. moderate	d. no correct answer	
is used to knock down parts of a building.		
a. Winch	b. Crane	
c. Truck	d.Wrecking ball	
In cricket games, the spe	eed of the ballwhen	
player hits it.		
a. increases in the same direction		
b. decreases in the same direction		
c. increases in the opposit	e direction	
d. decreases in the oppos		
	a. more than c. equal to Light objects cause dama a. more than c. equal to A train has kinetic energy a. more than c. equal to Light objects always have a. low c. moderate	

7	gaines, w	en the player hits the ball,	ï	
		rom the ball to the bat		
		rom the bat to the ball		
		oall increases in the same direction		
	d. the speed of the l	oall decreases in the opposite direction	1	
(B)	is (are)	from the most important equipment	during	
	a. Brakes	b. Seatbelt		
	c. Air bag	d. b & c		
9	Car seat-belt is used	to keep the driver from moving		
	during collision.			
	a. backward	b. forward		
	c. upward	d. downward		
1	collisi	on, the air bag inflates automatically.		
	a. During	b. Before		
	c. After	 d. No correct answer 		
1	collisi	on, the air bag deflates fast.		
	a. During	b. Before		
	c. After	d. No correct answer		
Pu	ıt (√) or (X):			
1	Light objects cause	damage less than heavy objects.	()
2	Fast objects cause	damage less than slow objects.	(
3	A truck has more ki	netic energy than a car.	(,
4	In cricket games, the speed of the ball increases when the player			
	hits it.		(•
6	When the player hi	ts the ball, energy transfers from the	e ball to	o th
	bat.		(
			•	



	6	During collision, the air bag deflates :	automatically,
	7	The seat belt is used to keep the driver	body from moving back.
		during collision.	('
	(8)	The air bag absorbs the energy of the	car during collision. (
3		ll in the gaps using the following	
(fo	orwa	ard - backward - same - opposite - mo	ore - less - plastic - nyle-
	0		than heavy objects
	2	Fast objects cause damage	than slow objects.
	3	When the player hits the ball, it moves	
	0	The seatbelt keeps the body of the dri- during collision.	
	6	The air bag is made up of steering wheel.	material folded inside the
4	W	rite the scientific term:	
	1	A heavy steel ball swinging on a cable	e. (
	2	A famous game in which the player	er hits the ball by the ba
	3	A safety equipment keeping the bod	y of the driver from movin
		forward during collision.	(
	4	A safety equipment made of a thin ny	lon material folded into the
		steering wheel.	(



Study the figures, then answer the following questions:

- From the following figure:
 - a. Which object has the lowest energy and why?
 - Which object causes more damage?



- From the following figure, complete the following sentences.
 - a. The boy uses a

to hit the ball.

b. Energy transfers from the

to the

c. When the boy hits the ball, the speed of the ball in the direction.



The following figure represents a, that is used in cars to keep the driver's body from moving during collision.



- The following figure represents the air bag.
 - a. The air bag automatically during collision.
 - b. The air bag fast after collision so the driver can get out of the car.





Choose the correct answer: The collision between two moving objects produces energy. a. kinetic b, heat c. sound d. all the following During the collision of moving bodies, a. energy transfer occurs b. energy changes occur c. damage occurs d, all the following Oamage will be less severe, when two cars collide in the direction. a. same b. opposite c. parallel d. perpendicular a. great damage that can be repaired great damage that can't be repaired c. small damage that can be repaired d. small damage that can't be repaired Fast objects have energyslow objects. a, more than b. less than c. equal to d. no correct answer The effect of collision _____ if two cars were in opposit directions. a. increases b. decreases c. remains constant d. no correct answer

7	2			
	 a. transfers from the 	slow object to the fast	object	
	b. transfers from the	fast object to the slow	object	
	c. is destroyed and le	ost in the air		
	d. changes into pote	ential energy		
(3)	The effect of collision	n depends on the	of the moving	9
	objects.			
	a. speed	b. direction		
	c. a & b	d. no correct an	swer	
9	The effect of collisio	n increases by	the speed of th	ie
	moving object.			
	a. increasing	b. decreasing		
	c. keeping	d. no correct an	iswer	
P	ut (/) or (X):			
-	Callisian babwaan m	ovina objects produce	es kinetic energy on	
U	Collision between m	oving objects produce	s killetic ellergy off	۱у.
				,
		oving objects produces)
3	The effect of collision	depends on the speed	of the moving obje	cts
	only.		()
4	The effect of collision	n increases if the two ca	ars crashed in the sa	me
	direction.		()
5	Hitting a fast rubber	ball makes a sound lou	ider than hitting a sl	OW
	ball.		/	١
6		t during collision	()
6	Kinetic energy is los		()
V	Kinetic energy is dou	ibled when the speed o	of the object is doub	ed.
			()



- Study the figures, then answer the following questions:
 - Which figure represents more severe damage and why?



Figure (1)



Figure (2)

- When the car hits the tree,
 - a. kinetic energy transfers from the to the
 - b. A part of the kinetic energy changes to and energies.





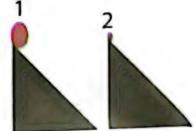
Unit (2) Concept (4) Lesson (5)

D	Ch	oose the correct an	A MARIE I			
	0	The kinetic energy of a	train is that of a true	L		
		a. more than	b less than			
		c. equal to	d all the following			
	0	When a car uses brake	s to decrease its speed, its kineti		11	
		a. increases	b. decreases			
		c. doesn't change	d. no correct answer			
	0	The car with speed	has the highest kinetic	energ	1	
		a. 100 km/h	b. 80 km/h			
		c. 60 km/h	d. 40 km/h			
	0	When a hits a p	erson, he may be injured only an	d survi	10	
		a. train	b. truck			
		c. car	d. bike			
	6	The shape of the clay ball changes slightly if the clay ball				
		to the ground.				
		a. falls	b. is thrown			
		c. a & b	d. no correct answer			
	Pu	t (/) or (X):				
	0	The relationship betwe	en the speed of the object and t	he kin	etic	
		energy is a direct relati	onship.	()	
	2	The relationship between	een the mass of the object and t	he kin	etic	
	_	energy is an indirect re	elationship.	()	
	6	When a bike hits a boy	, he will survive.	(1	
	0		always cause more damage.	,	,	
1		ast and meany objects		1	,	

Choose the correct answer:

- As the angle of inclination of the ramp increases, the speed of the moving object
 - a. increases

- b. decreases
- c. remains constant
- d. no correct answer
- The kinetic energy of an object sliding on a ramp depends on the
 - angle of the ramp
- b. mass of the object
- c. height of the ramp
- d. all the following
- From the opposite figure, which statement is correct?
 - Ball (1) reaches the ground first.
 - b. Ball (2) reaches the ground first.
 - c. Ball (1) and ball (2) reach the ground together.
 - d. No correct answer.



- From the opposite figure, the red car reaches the ground first because
 - a. the red car is heavier than the yellow car
 - b. the red car is lighter than the yellow car
 - c. the red car has a strong battery
 - d. the height of the ramp of the red car is more than that of the yellow car



c. sound energy

^	is (are) form(s) of ener	rgy existing in Newton's cradle.
0	. Kinetic energy b. Pote	ntial energy
	c Sound energy d. all th	ne following
ก	The ball stores potential energy w	hen•
9	a. the ball is raised up b. you	leave the ball
	c. the ball hits the 1st other ball	
	d. no correct answer	
3	The potential energy is converte	ed gradually to kinetic energy
	when	
	a. the ball is raised up b. you	leave the ball
	c. the ball hits the 1st other ball	
	d. no correct answer	
9	When the ball of Newton's per	ndulum hits the 1st other ball,
	a. kinetic energy transfers only to	the 1st other ball
	 b. kinetic energy transfers to all t 	he other balls
	c. kinetic energy is destroyed and	d lost in the air
	d. all kinetic energy is converted	into sound energy
5	Some of the kinetic energy chan cradle.	iges to in Newton's
	a. chemical energy b. he	at energy

d.b&c

Choose the correct answer:

- A crash investigator sees a car crash as a
 - a. puzzle
 - b. joke
 - c. problem
 - d. no correct answer
- The crash investigator task(s) is (are)
 - a. he uses laws of motion, force and energy to solve the puzzle
 - b. he asks the two drivers, who caused the accident
 - c. he measures the damage of the two cars
 - d. all the following answers are correct
- A crash investigator uses to collect information about the accident.
 - a. photos

b. videos

c. a & b

- d. no correct answer
- A crash investigator measures the car

by using a scale

a. volume

b. mass

c. position

- d. weight
- When a driver stops suddenly, the passengers move
 - upward

b. downward

c. forward

d. backward

Unit (3) Concept (1) Lesson (1)

Choose the correct answer:

1	a. sound energy	b. light energy
•	c. kinetic energy	d. solar energy ges electric energy into heat energy.
② ③	a. electric iron	b. radio d. cellular phone nges electric energy into light and sound
4	energies.a. cellular phonec. radioSound energy is produ	b.TV d. a & b seed from all the following devices, except
	a. cellular phone c. radio	b.TV d. electric iron
5	the	b.TV d. electric lamp
6	Solar cells change sola a. electric energy c. sound energy	b. heat energy d. kinetic energy

7	produc			
	a. Electric irons			
	c. Solar cells	b. Electric heaters		
		d. Motors		
(B)	- Consum	Consume electric energy.		
	a. Solar cells	b. Batteries		
	c. Solar heaters	d. Cellular phones		
9	Heat energy is	in the solar heater.		
	ar consumed	b. produced		
	c. lost	d. destroyed		
1	Electric energy is	in the electric heater.		
	a. consumed	b. produced		
	c. lost	at at a		
1	All these devices cons	ume electric energy, except the		
	a. cellular phone	diffe electric energy, except the		
	c. radio	oral cell		
1	The	d. TV		
	Thecont	ains chemical energy.		
	c. radio	b. battery		
B	Calculators can be an	d. TV		
	a. solar energy	erated by using		
	c. heat energy	b. electric energy		
(4)		d. sound energy		
	a. solar energy	erated by using		
	c. heat energy	b. electric energy		
•		d. natural gas		
(I)	A/Anis o	perated by electricity.		
	a. TV	b. electric heater		
	c. radio	d. all the following		

1	The distance between Ea	rth and Mars is	million	
① ①	kilometers. a. 54 c. 44 Curiosity is the most famo a. application c. robot Robots and vehicles are of a. electric chargers	b. 55 d. 45 us on Mars. b. spacecraft d. rocket perated by b. long-term batteries		
	c. solar panels	d.b & c		
Pu	t (/) or (/):			
		rom one form to another.	()
0	Electric lamps consume el	ectric energy.	()
0	Solar energy is the energy	consumed in solar cells.	()
6	TV and cellular phones pro	oduce light energy.	()
4	TV and radios consume so		()
6	Calar anarry is converted	into electric energy in solar	cells.()
6			(
7	Batteries produce chemic		ì	,
8	Calculators can be operate		1000	,
9	Curiosity Robot is one of the most famous robots on Mars.(
0	Robots obtain electricity f	rom solar panels and electri	C	

chargers.



Fill in the gaps using the following words:

(electric – heat – chemical – consumed – produced – TV – Solar cells)

0		produce ele	ctric energy.			
0	The	produce	es sound energy	<i>1</i> .		
0	Solar ene	rgy is the energy	, i	n solar ce	lls.	
0	Electric er	nergy is the ene	rgy	in solar	cells.	
(3)	Electric i	rons consume		energy	and	produce
		energy.				
6	The device	es contain batte	ries that contain	n	. (energy.
4 Wr	ite the s	cientific term	1:			
0	Energy pro	oduced from so	ar cells		(
		nsumed by sola				1
•	A device	that changes	electric energ	y into s		-,
4	A device	that changes	electric ener	gy into	heat	energy.
					(**** ************
G	device	that changes	solar energy	into el	ectric	energy.
					(
6 A	device th	at changes sola	r energy into h	eat energ	gy.	
					()
7 Ti	hey conta	in chemical er	ergy that chai	nges to e	electri	c energy.

9		mpiete the following:				
	1	andproduce sound energy.				
	2	andproduce light energy.				
	3	Electric energy is in cellular phones while it is				
		in solar cells.				
	4	change solar energy into electric energy.				
	5	Cellular phones change energy into a				
	energies.					
	6	change chemical energy into electric energy.				
	7	Spacecrafts needs more than months to reach Mars.				
	(3)	Vehicles on Mars change solar energy into,				
	and energies to operate thei					
		to move on Mars.				
	9	Robots are very far away from any and and				
	1	Devices use as a source of energy.				
6	Classify the following devices according to devices need					
	for	solar energy or electric energy:				
	9					
		Pevices that need solar energy Devices that need electric energy				



Choose the correct answer:

Energy is very important for most devices to

operate

b. do their functions

c. move

d. all the following

When batteries run out, devices

a. operate

b. move

c. stop

d. do their functions

Batteries store energy to operate devices.

a. electric

b. chemical

c. heat

d. kinetic

To make batteries work again, we must ______.

a. charge it

b. change it

c. burn it

d.a & b

The main source of energy in all devices is the

a. Sun

b. wind

c. water falls

d.coal

O Any energy chain with the Sun.

a.ends

b. stops

c. starts

d. no correct answer

🕖 During running,energy stored in food changes to

kinetic energy.

a. electric

b. heat

c. chemical

d. sound



Science Prim. 4 - Second Term

0	We burn trees to get	energy.			
	a. heat	b. electric			
	c.chemical	d. sound			
0	A hair dryer changes electric energy into energy.				
	a.kinetic	b. sound			
	c.heat	d. all the following			
1					
	a. Food	b. Coal			
	c.Water	d. No correct answer			
	The input energy in mobile phones is (are)				
-	a.electric	b. sound			
	c.light	d. b & c			
0	It is to operate any device without the Sun.				
(F)	a. possible	b. impossible			
	c.acceptable	d. no correct answer			
1	When you rub your hands, kinetic energy changes to				
	energy.				
	a.light	b. sound			
	c.heat	d.electric			
(Theis used to	move things.			
	a. dynamo	b. motor			
	c. hair dryer	d. electric heater			
(B)	Theis used to	obtain electricity.			
	a. dynamo	b. motor			
	c. hair dryer	d. electric heater			

Driving a bike changes the energy inside			
body into kinetic energy. Driving a bike changes the energy inside	the	nun	là,
a. heat b. chemical			
c. potential d. kinetic			
Change electric energy into kinetic energ			
a. Fans b. Motors	ly.		
c. Washing machines d. All the following			
Motors electric energy.			
a. consume b. produce			
c. lose d. no correct answer			
Heat energy is in the electric iron.			
- resulting			
di destroyed			
energy into kinetic energy	Jy.		
o. neat			
c. elastic potential d. electric			
2 Put (1) or (1):			
Any energy chain starts with the Sun.	()
When a battery runs out, we must charge it.	()
Batteries store electric energy.	,		1
Ouring running, chemical energy changes to kinetic en	,		1
en e	ergy	/.	1
A hair dryer changes electric energy into heat any many many into heat any many into heat any many into heat any many many into heat any many	(,
only changes electric energy into heat energy onl			1
6 Coal is used in electric power stations to get electricity.	(
Small watches are used to know time.	(
	•		

	(B)	Kinetic energy is produced in motors.		()		
	9	Heat energy is resulted from dynamos.		()		
	1	Small watches consume heat energy.		(,		
3	W	rite the scientific term:					
	0	It is the energy stored in batteries.	()		
	0	The main source of energy.	()		
	6	The output energy in the electric iron.	()		
	0	The output energy in the small watch.	()		
	6	A device used to move things.	(,)		
	6	A device used to get electricity.	()		
	0	A device used to light houses.	()		
	8	A device used for drying hair.	()		
	9	A device used to transfer image and sound.	()		
4	Co	mplete the following:					
	1	Energy makes devices and and					
	2	Batteries store energy that is used to operate					
	3	When batteries run out, we must	or				
	4	During running, the energy stored in the human body changes to energy.					
	5	is used in electric power stations to pro	duce ele	ctric	ity.		
	6	Any energy chain starts with the					

Canada a Stanto

Arrange the following energy chains from the start to the end: 6

Ouring running:



Chemical energy



Kinetic energy



Solar energy

In heating water:



Cutting trees



Burning wood



Solar energy

In mobile phones:



Light & sound energies



Coal



Sun



Cutting trees



Battery in mobile



Electric **Power Stations**



Unit (3) Concept (1) Lesson (3)

Choose the correct answer:

1	During	, chemical energy changes to kinetic ene
	a. running	b. reading
	c. driving a bike	d. a & c
2	On driving a bill	ke, a part of the kinetic energy ch _{anges} energy due to the friction between the _{Whe}
	a. heat	b. sound
	c. light	d. potential
3	conv	ert electric energy to light energy.
	a. Fans	b. Batteries
	c. Electric bulbs	d. Bikes
4	You feelbulb.	when you approach your hand to an electri
	a. cold	b. hot
	c. happy	d. angry
5	Which of the follow	ring statements is correct?
		hanged from one form to another.
		anged from one form to another.
	c. Energy may be lo	
	d. Energy can be cre	pated

	6			
		a. Law of Conservation of Energy		
		b. Law of Attraction Force		
		c. First Law of Newton d. Second Law of Newton		
2	Co	mplete the following:		
	1	On running, energy changes to	ener	gy.
	2	A part of the kinetic energy in a moving car changes to		
		due to the friction between the and the		
	3	Electric lamps change energy to		
		energy.		
	4	You feelwhen you approach your hand to	an elec	tric
		lamp.		
	6	Energy is neither nor, but it	***************************************	
3	Wi	rite the scientific term:		
	1	A device used to light houses. (•••••)
	2	The energy stored in food. (•••••)
	3	The energy produced due to friction. ()
	4	Energy is neither created nor destroyed. (· · · · · · · · · · · · · · · · · · ·)
4	Pu	t (/) or (X):		
	1	Energy can be changed from one form to another.	()
	2	You feel cold when you approach your hand to an elec-	tric bu	ılb.
			()
	3	Electric lamps convert electric energy to light energy.	()



5	Sti	Study the opposite figure, then choose the correct answer				
	1	The input energy isenergy.				
		(chemical – kinetic - electric)				
	2	The output energy isenergy.				
		(chemical - kinetic- electric)				
	(3)	As the speed of the car increases,				
		its kinetic energy				
		(increases – decreases – doesn't change)				
	4	The driver's body move when he/she stops,				
		(forward - backward - upward)				
		The wheel of the car becomes after stopping				

Mention the input and output energies of the following figure

(cold - hot - weak)

Figure	Input Energy	Output Energy
• 💡		
2		
3		
4		
5		



Unit (3) Concept (1) Lesson (4)

hair dryers.

		(4)			
1	Che	oose the correct answ	er:		
	0	The input energy in the ha	air dryer isenergy.		
		d. electric	b. heat		
		c. sound	d. kinetic		
	2	The function of a hair dry	er is		
		a. air movement	b. motor sound		
		c. drying hair	d. no correct answers		
	3	Heat energy is the	energy in the hair dryer.		
		a. Input	b. output		
		c. lost	d. no correct answers		
	4	Kinetic energy is the	during running.		
		a. input	b. output		
		c. lost	d. no correct answers		
	5	The output energy in the	hair dryer is energy.		
		a. light	b. sound		
		c. data processing	d. all the following		
2	Co	mplete the following:			
	0				
	2		and energies are		
		resulted in a hair dryer.			
	3		and energies are		
		resulted in a mobile pho			
		Electric energy is the	energy in mobile phones and		



O O	Air movement is the Kinetic energy is pr	e function of oduced in the	the hair dryer. hair dryer.)One
0	Data processing is the Energy is always sa	ved and not d	estroyed.	ione
Stud	ly these figures ar	energy – Hea energy – Kine	it energy -	7
_6	Input Energy		Output En	erg
	Electric energy	- Heat energ	gy – Light energ	עו
	Input Energy		Output Er	



34 Science Prim. 4 - Second Term



Unit (3) Concept (1) Lesson (5)

	Choose	the	correct	answer:
7.50				

- Ecologists study the flow of energy in difficult ecosystems, such as the
 - a. North Pole
 - b. bottom of oceans
 - c. forests
 - d. a & b
- - causes pollution
 - b. causes climate changes
 - c. affects the living organisms
 - d. no correct answer
- design solutions for the mobile screen to obtain light energy.
 - a. Ecologists
 - b. Engineers
 - c. Designers
 - d. No correct answer
- - a. consume a small amount of energy in a short time
 - b. consume a small amount of energy in a long time
 - c. consume a large amount of energy in a short time
 - d. consume a large amount of energy in a long time



Write the scientific term:

1	They study the flow of energy in difficult ecosystems.
	(
0	They modify the mobile battery to last for a longer time after charging it.
3	Areas affected hardly by decreasing the flow of energy to it.
	(
Con	nplete the following:

1	such as and
2	Any change in the flow of energy in difficult ecosystems affects
3	Mobile phones consume a

- Mobile phones consume a amount of energy in a time.
- modify the mobile battery to last for a longer time after charging it.



1	Choose the correct answer:			
	0	Curiosity is the most famo	us on Ma	rs.
		a. application	b. spacecraft	
		c.robot	d. rocket	
	0	To make a battery work ag	jain, we must	it.
		a. charge	b. change	
		c. burn	d. a & b	
	3	is used in electr	ic power stations to pro	oduce electricity.
		a. Gasoline	b. Coal	
		c.Water	d. No correct answer	
	4	Which of the following sta	itements is correct?	
		a. Energy can't be change		other.
		b. Energy can be changed		
		c. Energy may be lost or d		
		d. Energy can be created.		
	6	design solu	tions for the mobile s	creen to obtain
		light energy.		
		a. Ecologists	b. Doctors	
		c. Engineers	d. No correct answer	
2	W	rite the scientific term	n:	
	1	The energy stored in food	i.	()
	2	A device used to transfer	images and sounds.	()
	3	The energy produced due	e to friction.	()
	4	They study the flow of en	ergy in difficult ecosyst	tems.
			•	()

Science Prim. 4 - Second Term





3 9	omplete the following:	
Ø Ø	. The state of the place	duce electricit
① ② ③	Air movement is the function of the hair dryer. Any energy chain starts with the Sun. The output energy in a mobile phone is light energ The mobile phone consume a small amount of energ.	() y only.() ergy in a long ()

Complete the following table:

Figure	Input Energy	Output Energy
1 G		
2		
3		

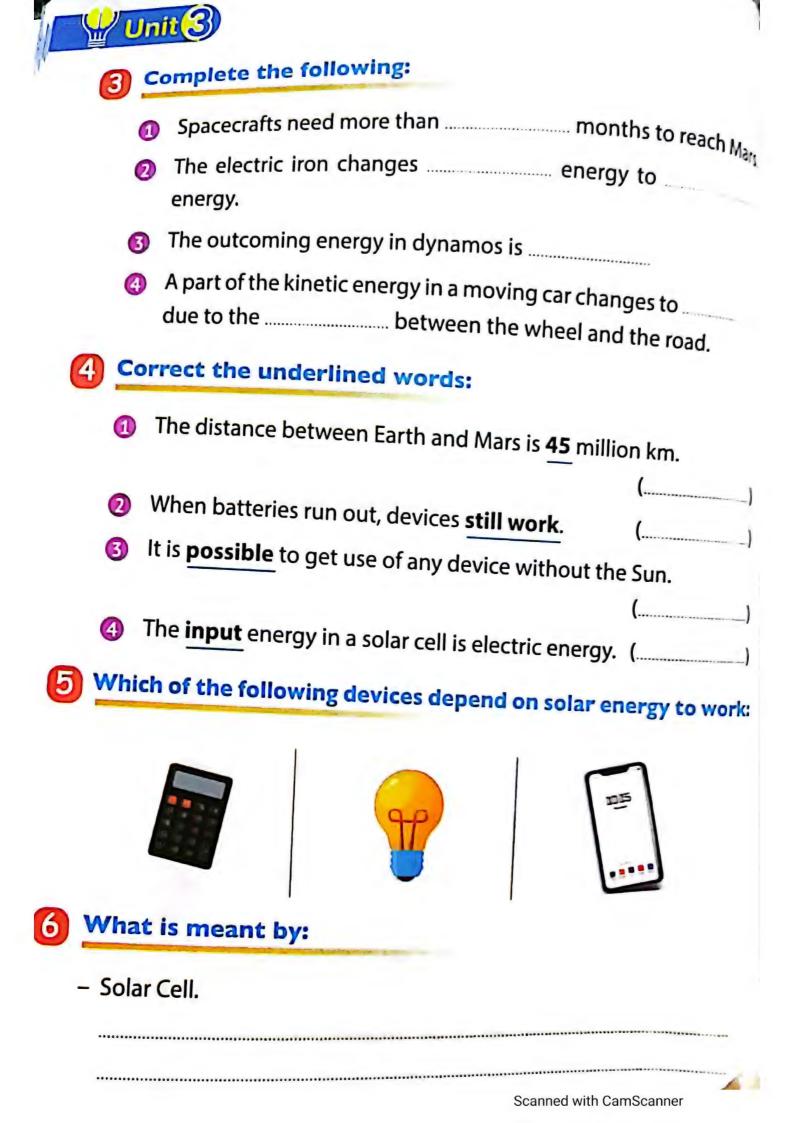
6 What is meant by:

_	Law of Conservation	n of Energy.





	C	hoose the correct	answer:	
_	0	Ecologists study th	e flow of energy in diffic	ult ecosystems, such
		a. North Pole	b. bottom of oce	ans
		c. forests	d. a & b	
		Heat energy is	in solar heaters.	
		a. consumed	b. produced	
		c. lost	d. destroyed	
	(3)	All these devices co	nsume electric energy, e	xcept
		a. solar cells	b. radios	
		c. TV	d. mobiles	
		A hair dryer change	s electric energy into	energy.
		a. kinetic	b. sound	
		c. heat	d. all the following	g
	(3)	energy	y is stored in trees.	
		a. Solar	b. Electric	
		c. Chemical	d. Potential	
2	Wı	rite the scientific	term:	
	1	They modify the mocharging it.	nobile battery to last fo	r longer time after ()
	0	Energy is neither cre	ated nor destroyed but it	can be changed.
		3,	•	()
	3	The energy stored in	side batteries.	()
	(4)	Energy consumed by	y a solar heater.	()
				•





Unit (3) Concept (2) Lesson (1)

1	1	Ch	00	se	the	cor	rect	ansv	ver:

1	The main source of fuel is t	he
	a.wind	b.waterfalls
	c.sun	d.no correct answer
2	Fossil fuel is extracted from	·
	a. mountains	b.forests
	c.rivers	d.underground
3	Vehicles need	. to move.
	a.food	b.fuel
	c.water	d. no correct answer
4	is (are) from t	he importance of fuel.
	a. Operating cars	b. Generating electricity
	c.Warming houses	d. All the previous
5	When the fuel inside the ca	ar runs out, the car
	a.stops	b. moves
	c.a & b	d. no correct answer
6	The wheels of the car rota	te when the fuel inside the car
	•	
	a.runs out	b. ends
	c. burns	d. no correct answer
7	is (are) from t	he examples of fossil fuel.
	a.Coal	b. Natural gas
	c. Petroleum	d. All of the previous



42 Gorange Prim 4 - D.

Correct the underlined words:	
O Any energy chain ends with the Sun.	
Fossil fuels are extracted from mountains	s.
When fuel burns inside a car, the car stop	5.
When fuel runs out, the car moves.	
S Petroleum is an example of biofuel.	, i
3 Complete the following:	
O Any energy chain starts with the	
fossil fuel.	are examples of
The wheels of the car when f engine.	fuel burns inside the a
The car stops, when the fuel	
of fossil fuel.	re from the important
Write the scientific term:	
1 It burns inside the car engine to make the	car move.
The main source of fuel.	(
What is the importance of:	1
1 Fossil fuel.	
7 Fuel.	



Unit (3) Concept (2) Lesson (2)

a. cutting trees

c. air pollution

 Jilic	(3)	
Ch	oose the correct an	swer:
	Burning fuel produces .	energy.
1	a. electric	b. kinetic
	notontial	d. heat
	is the olde	est fuel that is used all over the world.
2		b. Wood
	a. Coal	d. Natural gas
	c. Petroleum	enewable source of energy.
3		b. Biofuel
	a. Fossil fuel	d. Wind
	c. Sun	el made of living organisms that can be
4		el made of living organisms
	planted.	b. Biofuel
	a. Fossil fuel	d. Gasoline
	c. Petroleum	
6	is an exam	iple of blotuel.
	a. Petroleum	b. Coal
	c. Corn	d. Natural gas
6	is (are) exa	
	a. Petroleum	b. Coal
	c. Natural gas	d. All the following
7		es of the overuse of fossil fuel is (are)
	a. cutting trees	b. removal of forests
	c. air pollution	d. a & b
Ω	From the disadvantage	s of biofuel is (are)

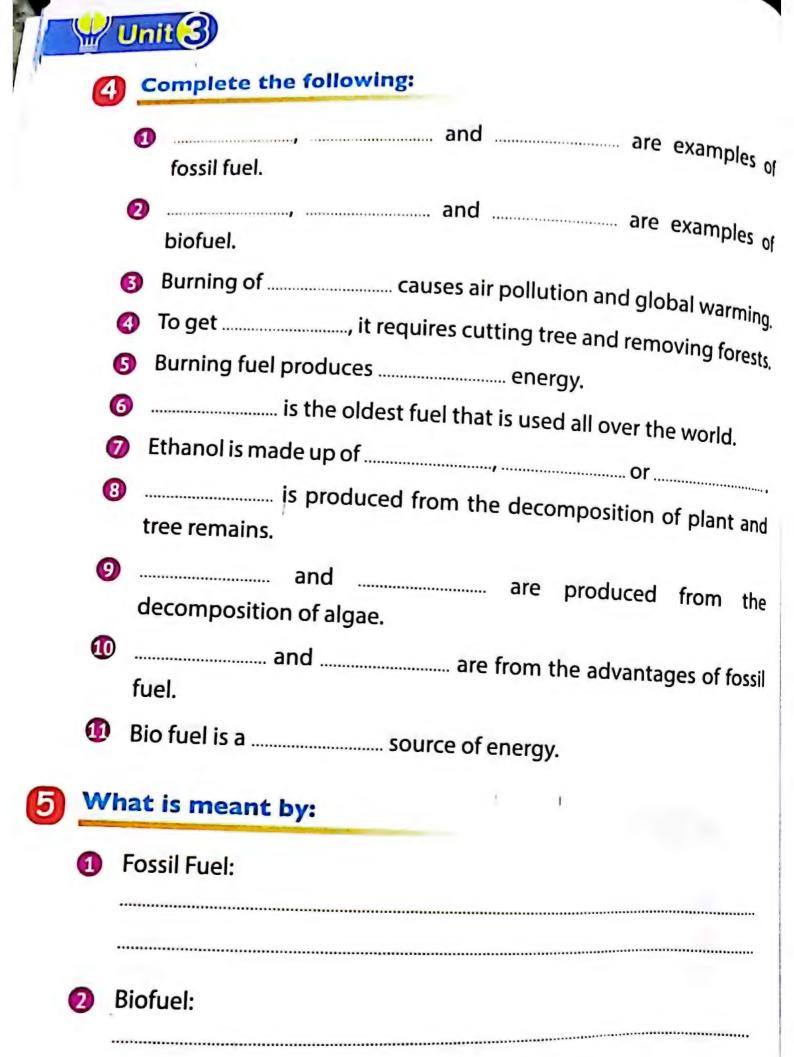
b. removal of forests

d.a&b



The rate of the co	nsumption of lossification the Im.
of its formation.	
a. more than	b. less than
c. equal to	d. no correct answer
	oduced from the decomposition of plants 6
trees.	. Al-townlane
a. Petroleum	b. Natural gas
c. Coal	d. Benzene
① is (are	e) produced from the decomposition of old
aquatic organisms.	
a. Petroleum	b. Natural gas
c. Coal	d. a & b
@ takes r	millions of years to be formed.
a. Fossil fuel	b. Biofuel
c. Charcoal	d. No correct answer
Ethanol is produced	from
a. grass	b. corn
c. coal	d. a & b
Global warming is or	ne of the disadvantages of burning
a. biofuel	b. petroleum
c. coal	d. b & c
All the following are	non-renewable sources of energy, except
a. coal	b. wood
c. petroleum	d. benzene
(6) All the following ar	re renewable sources of energy, except
a. corn	b. wood
c. petroleum	d. grass
e. petroreum	

6		rrece the underlined words:	
	0	Coal is the oldest fuel that is used all over the worl	
	0	Burning fuel produces light energy.	()
	6	WY 10.65 /	()
	0	Corn is a non-renewable source of energy.	
	6	Charcoal is made up of grass, corn or wood chips.	
	6	To get fossil fuel , it requires cutting trees & remov	
			()
	7	Petroleum is produced from the decomposition	of tree remains.
			()
	8	Coal is produced from the decomposition of alga	e.
			()
	9	Burning of biofuel causes air pollution & global w	varming.
			()
3	W	rite the scientific term:	
	1	It is the fuel resulting from the decomposition	of the remains
		of living organisms that lived on the earth millio	ns of years ago.
			()
	2	It is the fuel made from the living organisms tha	t can be grown.
			()
	3	It is made up of grass, corn or wood chips.	()
	4	A Biofuel that made up of wood.	()
	5	It is produced from the decomposition of plant a	nd tree remains.
			()
	6	It is produced from the decomposition of ma	rine organisms.
			()



Scanned with CamScanner

6 Label the following figures, then classify them into biofuel or fossil fuel:

Figure	Represents	Biofuel	Fossil fuel
1	Wood	/	
2	1111		
3			
4			
5	·		

7	Give	reason	for:

1	Fossil fuel is a non-renewable source of energy.
---	--

Biofuel is a renewable source of energy.



Unit (3) Concept (2) Lesson (3)

edlments o correct answer , the remains of old org _{anism}
, the remains of old organis _{ing}
roducing high heat energy.
tural gas
the previous
in electric power stations.
eam
correct answer
wires to cities.
g & thin
ort & thin
buried under and
e

	6	Electricity is generated by burning or
		in electric power stations.
	4	The petroleum or natural gas is burnt and produces
	•	eneray.
	0	starts to move turbines in electric power stations.
	6	A dynamo converts energy in the turbines into
	6	energy.
3	W	rite the scientific term:
	0	It the energy produced from burning fossil fuels. ()
		The device which changes kinetic energy into electric energy.
		The device which is
	2	()
		()
4	TI	ese steps represent the generation of electricity in
4	Thele	nese steps represent the generation of electricity in ectric power stations. Arrange the following steps from
4	Thele	ese steps represent the generation of electricity in
4	The electh	nese steps represent the generation of electricity in ectric power stations. Arrange the following steps from the start to the end: Steam starts to move turbines.
4	The electh	nese steps represent the generation of electricity in ectric power stations. Arrange the following steps from e start to the end:
4	Thele	nese steps represent the generation of electricity in ectric power stations. Arrange the following steps from the start to the end: Steam starts to move turbines.
4	The electric the - 5 - 1 - 6	nese steps represent the generation of electricity in ectric power stations. Arrange the following steps from the start to the end: Steam starts to move turbines. The petroleum or natural gas burns and produces thermal energy.
4	The electric the second	nese steps represent the generation of electricity in ectric power stations. Arrange the following steps from the start to the end: Steam starts to move turbines. The petroleum or natural gas burns and produces thermal energy. Electricity transfers through huge wires to cities.
4	The electric the second	nese steps represent the generation of electricity in ectric power stations. Arrange the following steps from the start to the end: Steam starts to move turbines. The petroleum or natural gas burns and produces thermal energy. Electricity transfers through huge wires to cities. The dynamo converts kinetic energy in turbines into electric energy.
4	The electric the second	nese steps represent the generation of electricity in ectric power stations. Arrange the following steps from the start to the end: Steam starts to move turbines. The petroleum or natural gas burns and produces thermal energy. Electricity transfers through huge wires to cities. The dynamo converts kinetic energy in turbines into electric energy.
4	The electric the second	nese steps represent the generation of electricity in ectric power stations. Arrange the following steps from the start to the end: Steam starts to move turbines. The petroleum or natural gas burns and produces thermal energy. Electricity transfers through huge wires to cities. The dynamo converts kinetic energy in turbines into electric energy.
4	The electric the second	nese steps represent the generation of electricity in ectric power stations. Arrange the following steps from the start to the end: Steam starts to move turbines. The petroleum or natural gas burns and produces thermal energy. Electricity transfers through huge wires to cities. The dynamo converts kinetic energy in turbines into electric energy.



Unit (3) Concept (2) Lesson (4)

Choose the correct answer:

0	Petroleum oil is conside	ered as asource of energy,
	a. permanent	b. renewable
	c. non-renewable	d. no correct answer
	Water is considered as a	source of energy.
•	a. permanent	b. renewable
	c. non-renewable	d. no correct answer
	The amount of	is limited on Earth.
3	a. biofuel	b. fossil fuel
	c. a & b	d. no correct answer
4	To reduce air pollution, w	e must
	a. walk instead of driving	cars
	b. use public transportati	ion
	turn off lamps if we do	n't need them
	d. all the previous	
		of fossil fuel is the rate of
	s formation.	
а	. more than	b. less than
C	equal to	d. no correct answer
Pe	etroleum is formed from t	the decomposition of
a.	bacteria	b. diatom algae
c.	fungus	d. euglena



2	Co	mplete the following:		
	0	The amount of fossil fuel is on Earth	1.	
	0	The rate of formation of petroleum is of its consumption.	than the	
	(3)	The chemical structure of water and petroleum a		
	4	Petroleum is formed from the decomposition organisms called		
	6	Diatom algae is very organism, s	maller than	the
	6	Water is considered as a source of e	nergy.	
3	Pu	t (/) or (X):		
	0	Water is a non-renewable source of energy.	()
	0	The chemical structure of water and petroleum is	different.)
	63	The amount of petroleum on Earth is limited.	()
	4	ices if we do	n't	
		need them.	()
4	W	rite the scientific term:		
	0	They are very tiny organisms, smaller than the	head of a p	
	2	The amount of it on Earth is limited.	()



5	Give	reason	for:
		. caser.	

Water is a renewable sources of energy.

Petroleum is a non-renewable sources of energy.

6 How to reduce the burning of fossil fuel:

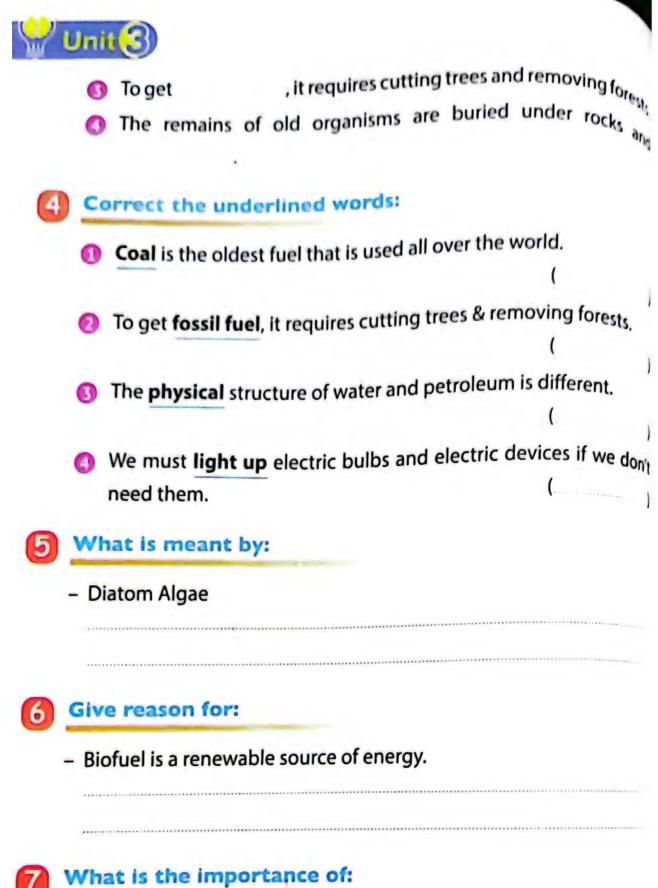
0

3

Mow to reduce the consumption of water:

Model Exam Unit (3) Concept (2)

Choose the corre	ct answer:				
Fossil fuel is extra	cted from				
a. mountains	b. forests				
c. rivers	 d. underground earth 				
s th	e oldest fuel that used is all over	the world.			
a. Coal	b. Wood				
c. Petroleum	d. Natural gas				
is an	example of biofuel.				
a. Petroleum	b. Coal				
c. Corn	d. Natural gas				
, mov	es the turbines in electric power	stations.			
a. Air	b. Steam				
c. Water	A AMOUNT OF THE PROPERTY OF TH				
6 Petroleum is form	ed from the decomposition of				
a. bacteria	 b. diatom algae 				
c. fungus	d. euglena				
Write the scientifi	c term:				
1 It the energy produ	uced from burning fossil fuel. (
7 The amount of it o	n Earth is limited. ()			
It is made up of grass, corn or wood chips.					
① The main source of fuel.					
Complete the follo	wing:				
Any energy chain s	tarts with the				
0	and a	re from the			
importance of fossi	l fuel.				



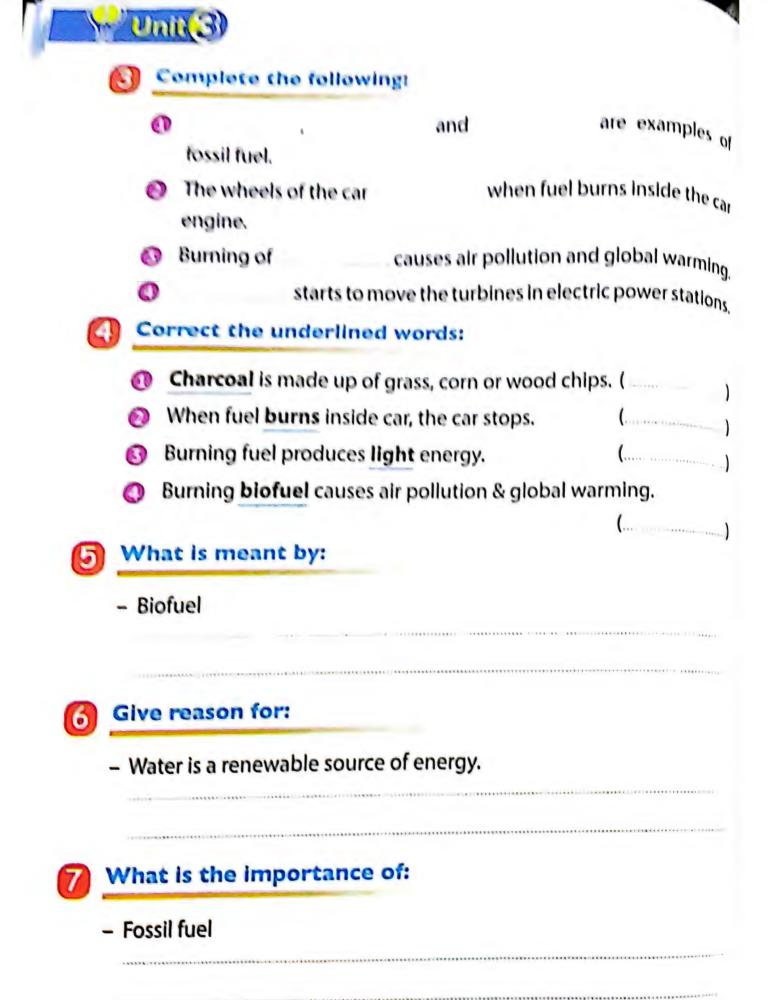
- Dynamo

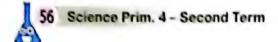
.....

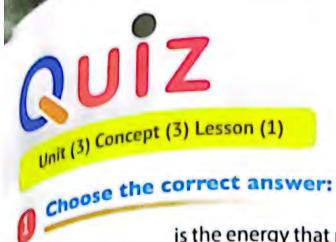


the fuel inside the car ods correct answer the decomposition of plants or atural gas
ods correct answer the decomposition of plants or atural gas
the decomposition of plants or
atural gas
atural gas
nzene
MILCHE

orn
& b
e buried under
diments
correct answer
source of energy.
newable
correct answer
tic energy into electric energy.
()
naller than the head of a pin.
()
osition of plant and tree remains.
(
make the car move. (
t







is the energy that run out faster than us consuming it.

- a. Renewable source of energy
- b. Non-renewable source of energy
- c. Permanent source of energy
- d. Solar energy
- All of these are examples of renewable sources of energy, except
 - a. solar energy b. wind energy
 - d. water falls c. coal
- - a. make their life easier b. get tasks done faster
 - c. save their effort d. all the following answers
- The number of blades in a modern mill is _____ the number of blades in an old windmill.
 - a. more than b. less than
 - d. double c. equal to
- A modern windmill is than an old windmill.
 - a. taller b. shorter
 - c. heavier d. no correct answer
- The input energy in the flashlight is ______.
 - a. electric energy b. chemical energy
 - c. kinetic energy d. no correct answer



	depends of	on a renewable source of energy	4	
	a. Petroleum oven	b. Gas oven	•	
	c. Solar cell	d. Flashlight		
		ends on asource of	0-	
	ine electric heater depe	b. non-renewable	ener	9 y,
	a. renewable	d. no correct answer.		
	c. permanent			
	Oal is the source of energy			
	a. gas oven	b. fireplace		
	c. petroleum oven	d. solar heater		
	🚺 were used t	o grind grains.		
	a. Solar panels	b. Windmills		
	c. Fireplaces	d. Gas ovens		
•	In a windmill, it is better t	o		
	a. increase the number of	f blades		
	b. decrease the number of	of blades		
	c. make its blades light			
	d. b & c			
	Theproduces	s heat and depends on a non-re	newa	ble
	source of energy.			
	a. electric heater	b. solar heater		
		d. no correct answer		
	c. gas oven	a. no control and a		
2 Pu	t (√) or (X):			
0	Waterfalls are from the rene	ewable sources of energy.	()
•		ades to generate kinetic energy	ı.()
2			,	١
3	A modern windmill is short	er than an old windmill.	(1
4	Flashlight depends on a noi	n-renewable source of energy	. (

		Coal is used to operate the gas oven.	()			
	0	All devices depend on renewable sources of energy.	()			
	U	The output energy in a solar heater is solar energy.	()			
	0	Old windmills are used in grinding grains.	()			
	0	Natural gas is considered from renewable sources of ene	rgy.()			
	0	autcoming energy of a battery is chemical energy.	. ()			
		In the gaps using the following words:					
3		(Coal – heat – chemical – consumes – produces – Wind – taller - shorter)					
	^	is from renewable sources of energy.					
	0	The input energy in a battery is energy.					
	0	The modern windmill is than the old win	dmills.				
	4	is used in the fireplace to produce heat energy.					
	6	A solar heater heat energy.					
4	W	rite the scientific term:					
U	E	It is the energy that will not run out faster than us cons	uming i	it.			
	•						
	0	They are used to make the life of people easier and get	tasks do	ne			
		faster. (••••••••••)			
	3	A device at which wind rotates its blades and it produ	ces kine	tic			
		energy. (•••••••)			
	4	The source of energy of a flashlight. ()			
	6	The source of energy of a fireplace. (•••••••••••••••••••••••••••••••••••••••)			
	6	The outcoming energy of a solar heater. (•••••••••••••••••••••••••••••••••••••••)			
	0	The incoming energy in an electric heater. (•••••••••••••)			

Exercises Book



Complete the following:

	Machines need	to be operated.
	is the energy	that will not run out faster 5
	consuming it.	
	6) and	are renewable sources of energy
		are non-renewable sources,
	energy.	,
(People use machines to	and
	Windmills were used to	(1)
	An old windmill is	than a modern windmill,
	The number of blades in a mo	odern wind mill is the
	the old one.	
C	Any device needs	to move
T	The input energy in a flashligh	t isenergy.
1	The output energy in a flashlig	ht isenergy.
	Petroleum oven depends on a	source of energy,
B	The changes elec	tric energy into heat energy.
1	Coal is used in the	to produce heat.
1	Coal is used in the	to generate electricity.
13	The input energy in a fireplace	is ,
1	The &	produce heat and depend on
	non-renewable sources of energ	
(B)	The &	produce heat and depend on
	renewable sources of energy.	

Study the figures, then answer the following questions:





Figure (1)

Figure (2)

What is the output energies of the two figures?
Which one of them depend on a non-renewable source of energy?

Complete the following table:

Device	Source of Energy	Source of Energy Kind
Flashlight		
Solar heater		
Gas oven		
Fireplace		
Electric heater		



B) <u>v</u>	/hat is the importance of:
	0	Machines:
	0	Windmills:
	0	Solar panels:
	0	Flashlight:
	0	Fireplace:
9	W	hat is meant by:
	0	Renewable Source of Energy.
	2	Non-renewable Source of Energy.
	3	Solar Panels.
10	Giv	e an example for:
	0	Renewable source of energy:
	2	Non-renewable source of energy:



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	A device that depends on a renewable source of energy:
4	A device that depends on a non-renewable source of energy:
W	nat will happen when:
0	Wind moves the blades of a windmill.
0	Water moves the blades of a watermill.
Giv	
	re reason for:
0	Solar energy is a renewable source of energy.
1	
1 2 3	Solar energy is a renewable source of energy.



Unit (3) Concept (3) Lesson (2)

Choose the correct answer:

- The surface of the is not solid.
 - a. Sun b. Moon
 - c. Earth d. Mars
- The surface of the Sun
 - a. is solid as the Moon
 - b. is gas as the Moon
 - c. isn't solid as the Moon
 - d. isn't gas as the Moon
- The Sun consists of different gases, such as
 - a. hydrogen & nitrogenb. hydrogen & helium
 - c. helium & oxygen
- d. oxygen & nitrogen
- - a. sun sphere
- b. gaseous sphere
- **c.** photosphere **d.** ionosphere
- - a. it provides us with heat energy
 - b. it provides us with light energy
 - c. plants need it to grow up
 - d. all the previous
- If you look directly to the sun for a long time, your eyes w
 - a. see rainbow
- b. be damaged

c. be burned

d. no correct answer



Science Prim. 4 - Second Term

0	Without the sup			
	Nithout the sun			
	a. plants will grow up but all animals will die			
	b. plants will die but all animals will still be alive			
	c. people can depend on the Moon instead of it			
	d. life disappears on Earth			
B	Heat and light energies transfer from space to us in the form of			
	transfer from space to us in the form of			
	a. curved lines			
		b. waves		
	c. zigzag lines	d. circles		
9	Sunrays are called			
	a. infrared rays			
	c. visible rays	b. X-rays		
0		d. radioactivity		
•	weather in winter			
	weather in winter.			
	 a. Irrigation machines 	b. Greenhouses		
	c. Tissue culture	d. No correct answer		
1	The heat energy of the Sun used to warm the part of			
	a greenhouse.			
	a. internal	h outewal		
	c. a & b	b. external		
		d. no correct answer		
D	Curved mirrors are used for			
	a. warming houses	b. cooking		
	getting electricity	d. no correct answer		
13	To warm our houses, we must place a			
	a. large window on the wall facing the sun			
	b. large window on the wall not facing the sun			
	c. small window on the wall facing the sun			
	d. small window on the wall not facing the sun			





	0	A solar heater	s placed at th	е .			
		a. streets	ь	. markets			
		c. bathrooms		. tops of buildings			
	(is	out energy in solar pa	inels.			
		a. Solar energy		. Electric energy			
		c. Heat energy		.b&c			
	(C)	Α		devices that operate	by us	ing s	On
	•	energy.					
		a. fan	b	. calculator			
		c. TV	d	, radio			
2	Pu	t (/) or (X):					
	_	The surface of t	he Sun is calle	ed photosphere.		(
	0	The surface of t				. (
	2			e absence of the Sun		1	
	6					(
	4	Sunrays are call	ea radioacuvi	iy.	d cold	Weat	ther
	6		lp farmers to	grow plants that nee		1	
		in summer.		المائيين على المساعد ا	205	1	
	6	A solar heater is	always place	d at the top of buildir	iys.		7
	7			number of small solar		-(- 1
	8	The output ene	rgy in calculat	ors is the solar energ	у.	(ž
_			16 - 4				
3	Wi	rite the scient	ific term:				
	0	It is a gas region	at the edge o	of the sun that emits	light a	nd h	eat.
					(-	
	2	It helps farmers	in planting cro	ps that need hot we	ather in	n wir	te.
					(
11			4.				
V 00	2016	nce Prim. 4 - Second Te	11 112				

		They are used to direct the sunrays towards the co	oking pans.	
	3)	,,,,	()
6	4	They are placed at the top of buildings.	(,,,,)
		It consists of a large number of small solar cells.	()
	5	The input energy of the calculator.	()
	Co	mplete the following:		
	D	Sun consists of different gases, such as	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	and
	3	The surface of the Sun is called	energies our eyes wil	I be
		Without the sun, the plants will		
	3	Sunrays are called		
•		in winter.	ed hot weat	her
(are used to direct sunrays towards the	cooking pa	ns.
6		The solar heater is placed at the		
1	0	A solar panel consists of a large number of	•	
1	þ	Solar panels change energy into energies.		or
•)	The input energy in calculators isene		
		Science Prim. 4 – S	econd Term 67	



6	W	hat is meant by:	
	1	Photosphere	**************************************
	0	Solar Energy	
	3	Solar Panels	
	4	Greenhouse	
6	Sti	Figure (1) The following figure represents the second of	ne plant in the absence of the sun?
		c. What is the importance of	uie suii:

- The following figure represents a solar oven:
 - a. What type of mirrors are used in this device?



b. What is the importance of this device?

- The following figure represents a solar heater:
 - a. The input energy is
 - b. The output energy is
 - c. It is placed at the



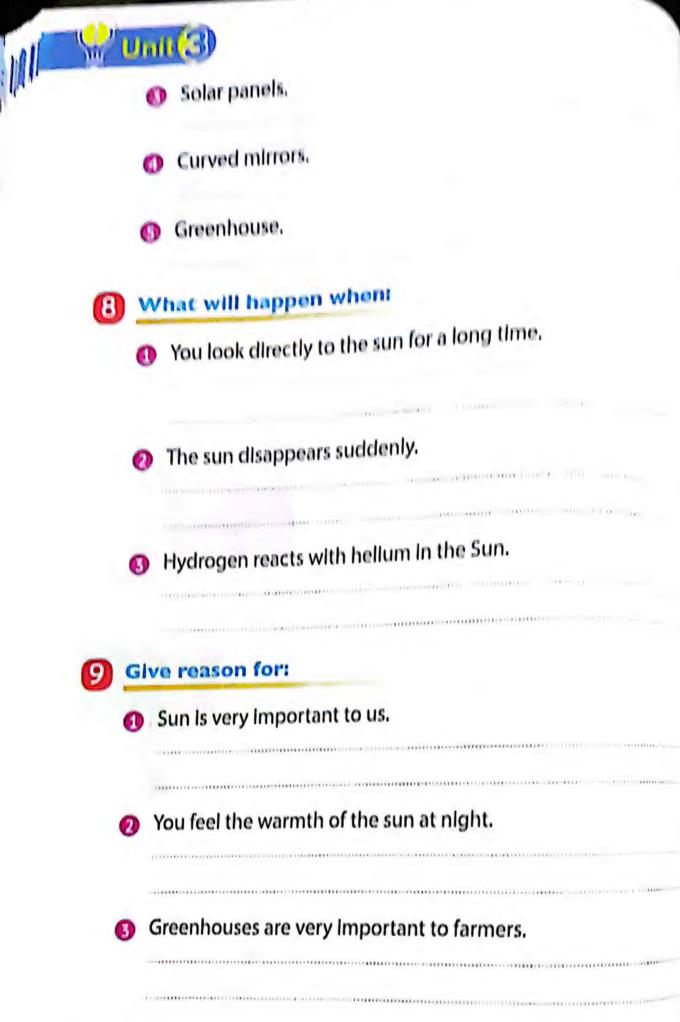
- The following figure represents a calculator:

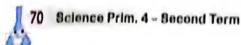
 - b. It contains provided and small

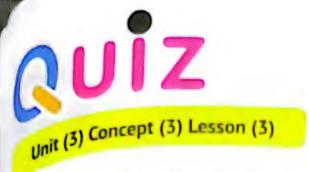


- What is the importance of:
 - The sun.
 - Solar energy.

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Choose the correct answer:

- Solar energy causes
 - a. air movements
- b. wind blowing

c. a&b

d. no correct answer

change the kinetic energy of turbines into electric energy.

a. Motors

b. Dynamos

c. Windmills

- d. Watermills
- The correct arrangement for generating electricity by using wind energy is
 - Sun wind electric lines windmills houses
 - Sun wind windmills electric lines houses
 - c. Sun windmills electric lines wind houses
 - d. Sun windmills wind electric lines houses
- Which of the following statements is correct?
 - A dynamo changes electric energy into kinetic energy.
 - b. The wind rotates the blades of watermills.
 - c. Solar energy causes wind blowing.
 - Electricity is transferred to cities through thin wires.

	Unit 3	
III W	For generating a huge amount of electricity, it	s bette.
		1 6

- a. increase the number of blades of the turbine
- b. decrease the number of blades of the turbine
- c. design light blades
- d.b&c
- The most effective turbine in generating electricity is









Complete the following:

- 1 The sun the earth and the wind.
- 2 Solar energy causes air and wind and wind
- A dynamo changes energy to energy,
- (5) It is better to the number of blades inside the turbine

Write the scientific term:

- 1 It warms the earth and the wind.
- 2 It causes air movement and wind blowing. (.....
- 3 It changes the kinetic energy into electric energy. (.....

	10	or	(X):
-	V)		

The wind rotates the blades of windmills.

The motor changes electric energy into heat energy.

Electricity is transferred to cities through thin wires.

It is better to decrease the number of blades of a turbine.

Heavy blades are better than light blades in generating electricity.

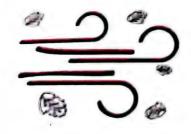
What is meant by:

_ Dynamo

3 Study the figures, then answer the following questions:

To generate electricity, arrange the following figures from the start to the end:





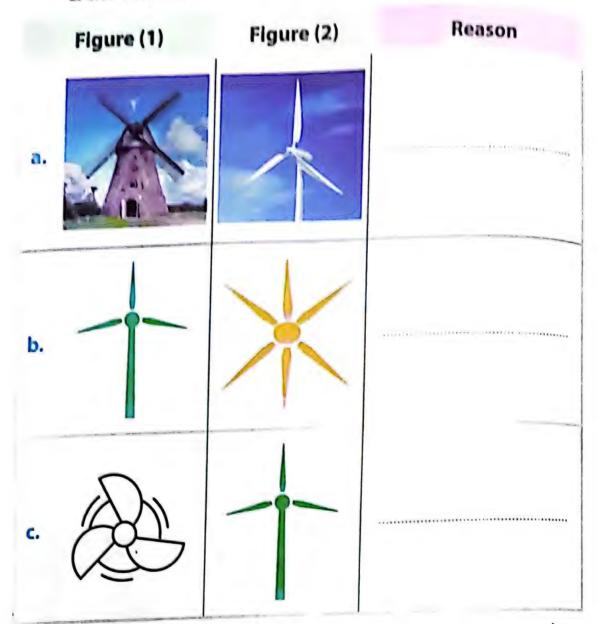








Choose from the opposite figures the most effective turbing the reason:



Complete the following table:

Device	Input Energy	Output energy
Motor	•••••••••••••••••••••••••••••••••••••••	
Dynamo		

	n when:		
The wind rotates	s the blades of t	he turbine.	
We decrease the	number of blac	les in the turbine.	
We replace the lig	ght blades of tu	rbines by heavy b	olades.
e reason for:			engine an in-
Sun helps us in ge	enerating electi	icity by wind.	
	We decrease the We replace the lig	We decrease the number of blace We replace the light blades of tue	The wind rotates the blades of the turbine. We decrease the number of blades in the turbine. We replace the light blades of turbines by heavy be reason for: Sun helps us in generating electricity by wind.



Unit (3) Concept (3) Lesson (4)

Choose the correct answer:

	/ F1
1	Water of rivers stores great at the top of slopes.
	a. kinetic energy
	b. potential energy
	c. electric energy
	d. light energy
2	When the water of rivers falls from a high slope,
	a. potential energy is converted into kinetic energy
	b. kinetic energy is converted into potential energy
	c. potential energy is converted into electric energy
	d. kinetic energy is converted into electric energy
3	When the dams stop the flow of water, so the potential energy of
	water
	a. remains constant
	b. decreases
	c. increases
	d. changes to kinetic energy
4	Potential energy is converted gradually into kinetic energy when
	the
	a. dam stops the water
	b. dam allows water to pass
	c. water falls from a high slope
	d. b & c

4	-	omprete the following:						
	0	Vhen the water of rivers falls from high slopes, potential energy						
	2	The input energy of a dynamo is						
	3	144	end	irgy				
	4	Electricity transfers to cities through and and						
3	Pu	it (√) or (X):						
	0	When dams stop water, the kinetic energy of water reamaximum value.	aches	i Its				
	2	When water becomes free, potential energy is changed to energy.	o kin	etlc)				
	3	A dynamo changes potential energy to kinetic energy.	()				
4	WI	nat will happen when:						
	0	Dams store the water of rivers.						

(2	The water of dams become free.						





6		Choose the correct answer:					
•	6	A modern windmill is	than an old w	indmill.			
		a. taller	b. shorter				
		c. heavier	d. no correct answer				
	6	Coal is the source of energy in the					
	4	a. gas oven	b. fireplace				
		c. petroleum oven	d. solar heater				
	3	The surface of the Sun					
	•	a. is solid as the Moon	b. is gas as the Moon				
		c. isn't solid as the Moon	d. isn't gas as the Moo	n			
	(4)	which of the following statements is correct?					
	5	h stantial operay					
		a. kinetic energy	d. light energy				
_		c. electric energy					
2	W	rite the scientific term					
	1	It is the energy that will r	not run out faster than	consuming			
				(
	2	The source of energy of a fl	ashlight.	(
	8	It helps farmers in planting	crops that need hot we	ather in wint			
	•			(
	(4)	The input energy of the cal-	culator.	(
70	Cala	nen Brim 4 - Second Term	W.				

3	C	omplete the following:
	0	Machines need to be operated,
	0	& produce heat and depend on
		non-renewable sources of energy.
	6	Sun provides us with and energies,
	4	Solar energy causes air and wind
4	Co	rrect the underlined words:
	0	Modern windmills are shorter than the old windmills.
		(,,,,,)
	2	Coal is used to operate the gas oven.
	6	Petroleum is from the renewable sources of energy.
		(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	(4)	The outcoming energy of a battery is chemical energy.
		(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
5	WI	nat will happen when:
	– T	he sun disappears suddenly.
	•••	
6	W	nat is meant by:
	- PI	notosphere
	••••	





60	Choose	the	correct	answer:

 All of these are examples of renewable sources of energy, e 	Xcen
---	------

- solar energy
- b. wind energy

c. coal

- d. water falls
- In a windmill, it is better to
 - a. increase the number of blades
 - b. decrease the number of blades
 - c. make its blades light
 - d. b&c
- The surface of the Sun is called
 - a. sun sphere
- b. gaseous sphere
- c. photosphere
- d. ionosphere
- O Potential energy is converted gradually into kinetic energy when the
 - a. dam stops the water
- b. dam allows water to pass
 - c. water falls from a high slope
 - d. b&c
- The most effective turbine in generating electricity is

a.



b



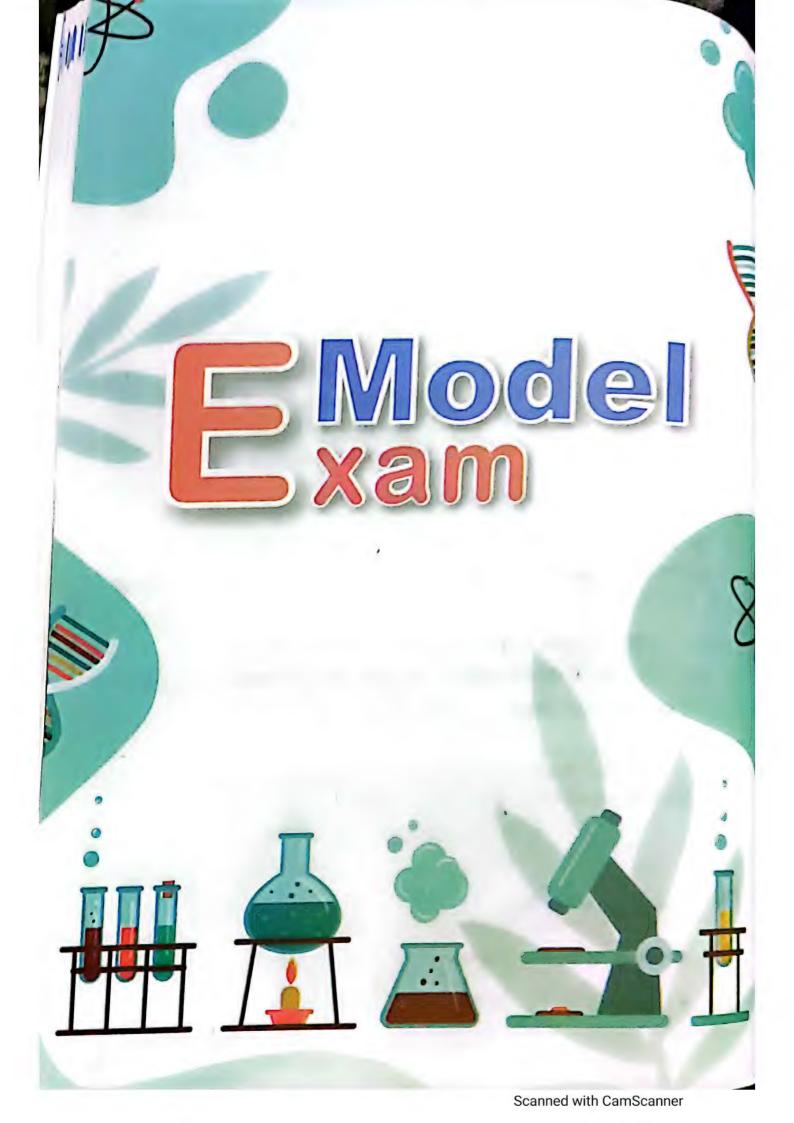
C.



d



2	W	rite the scientific term:		
	0	It is used to make the life of people easier and faster.		s done
	2 3	The source of energy of a fireplace. It is a gas region at the edge of the Sun that emits	s light ar	nd heat
	4	It consists of a large number of small solar cells.	(
3	Co	mplete the following:		
a	0 0 3 4	A solar heater is placed at the		
4	_		,	
	1 2	All devices depend on renewable sources of energy. Natural gas is considered from renewable sources.	rces of	energy
	3	Motor changes kinetic energy into electric energy. When dams stop water, the kinetic energy of the)
	C:	its maximum value.	()
9		e reason for: /e feel the warmth of the sun at night.		
6	Wh	at is meant by:		•••••
	– Re	enewable Source of Energy.		



	Ch	oose the correct answ	ver:	
	0	Ecologists study the flow	of Energy in difficult	Ecosystems such
		as a. north pole	b. bottom of oceansd. a & b	
		c. forests	nple (s) of biofuel.	
	0	a. Petroleum	b. Coald. Natural gas	
		c. Corn		nars.
	6	Curiosity is the most famous Application	d Rocket	
	0	c. Robot Car seat-belt used to k		ver from moving
		a. upward c. backward	b. downwardd. forward	
	W	rite the scientific tern	1:	
2	0	It is a gas region at the ed	dge of the sun that en	nits light and heat.
	0	The input energy in calcu Energy is neither created	lator.	(can be changed.
	3			
_	0	A heavy steel ball swinging		
3	Co	mplete the following:		
	0	Spacecraft needs more th	nan mon	ths to reach mars.
	0	Electric iron changes	energy to	energy.
	6	Solar cars are		



- Batteries store
- energy and used to open



- Charcoal is made up of grass, corn or wood chips.
- Electric vehicles cause climate changes.
- Any energy chain ends with the sun.
- The input energy in the solar cell is electric energy.
- Mention the input and output energies of the following







- 6 What meant by:
 - Renewable source of energy
- Give reason for:
 - People use machines.
- What is the importance of:
 - Green house:



0 5	hoose the correct ansv	ver:	
1	The amount of	is limited on the ea	rth.
	a. biofuel	b. fossil fuel	
	c. a & b	d. no correct answers	s
0	Modern wind mill is	than old wind	mill.
	a. taller	b. shorter	
	c. heavier	d. no correct answer	
3	Sound energy is produce	d from all the followin	g devices except
	 Cellular phone 	b.TV	
	c. Radio	d. electric iron	
4	The correct arrangement	for generating electri	city by the wind
	energy is		,
	a. Sun – wind – electric lin	es – wind mills - house	es
	b. Sun – wind – wind mills	- electric lines - house	es
	c. Sun – wind mills – elect		
	d. Sun – wind mills – wind	– electric lines - house	es -
2 <u>w</u>	rite the scientific term	: ,	
1	A heavy steel ball swinging	g on a cable.	()
2	A device used to light hou	ses.	()
3	The input energy in hand l	bell.	()
4	It burns inside car engine t	to make the car moves.	
			()

Model Exam	
Complete the following:	
① Truck causes damage	than the car.
O Hair dryer changes and	energy to energies.
Solar cars don't cause	
and are no	on-renewable sources of en
Correct the underline words:	
Solar vehicles need gas stations.	. (
Ocal is used to operate the gas o	oven. (
6 Any energy chain ends with the s	sun. (
Kinetic energy is lost during collis	sion. (
The following figure represents	a solar heater:
The input energy is	
7 The output energy is	
It is placed on the	



What's happen when:

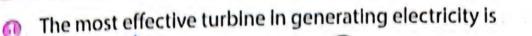
You look directly to the sun for a long time.

What is the importance of:

- Seatbelt
- **Dams**



Choose the correct answer:







C.





- All the following are renewable sources of energy except
 - a. corn

b. wood

c. petroleum

- d. grass
- 63 Heat energy isin solar heater.
 - a. consumed

b. produced

c. lost

- d. destroyed
- When a hits a person, he may be injured only and survive.
 - a. train

b. truck

c. car

d. bike

Write the scientific term:

To get it, it requires removal of forest and cutting tree.

Very tiny organisms, smaller than the head of a pin.

(.....)

- O Device used to transfer images and sounds.
- O The input energy of the calculator.

Complete the following:

- Air bag is made of thin steering wheel.
- fossil fuel.

material folded into the

- When a player hits the ball with a bat, the speed of the tall in the direction.
- Batteries store energy and used to operate

Correct the underline words:

- The surface of the sun is solid.
- When fuel burns inside a car, the car stops.
- Solar vehicle needs to be charged.
- Electricity transfer to cities through thin wires.

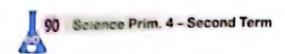
Complete the following table:

Device	Input Energy	Output energy
Motor		
Dynamo		



- Give reason for:
 - Petroleum is a non-renewable source of energy.
- (3) What is the importance of:
 - Air bag:
 - Possil fuel:

0 9	Choose the correct :	answer:	
6	The surface of the su	in is called	
	a. sun sphere	b. gaseous sphere	
	c. photosphere	d. ionosphere	
•	contain	ns chemical energy.	
	a. Solar heater	b. Batteries	
	c. Radio	d.TV	
3	Ethanol is produced	from	
	a. grass	b. corn	
	c. coal	d. a & b	
4	Heat and light energ	gies transfer from space to	us in a form of
	a. curved lines	b. waves	
	c. zigzag lines	d. circles	
3 <u>w</u>	rite the scientific to	erm:	
0	It consists of large nu	mber of small solar cells.	(
0	The input energy of the		(
6	A heavy steel ball swin		(
6	The second secon	ced from burning fossil fu	el. (
Co	mplete the following	ig.	
0	Sun consists of diff	erent gases such as	an
	100 - 100 -		
2	produce	d from the decomposition	of algae.
3	Solar vehicles don't ne	eed or	
4	Solar energy causes ai	r and wind	

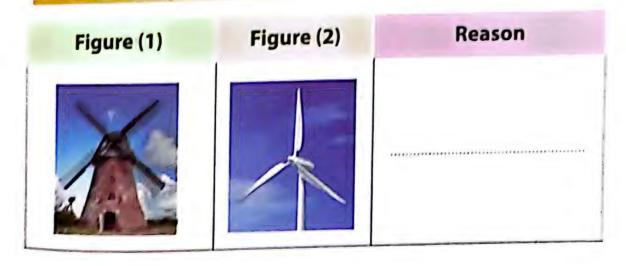


	Co	rrect the underlined word	is:
4)	0	All devices depend on renewa	able sources of energy.
	0	The chemical structure of water	er and petroleum is the same .
	3	Charcoal is produced from the	e decomposition of tree remains.
	4	After collision, the air bag infla	ates fast. ()
5	WI	nich figure represents moi	re severe damage and why?
6		0000	00000
		Figure (1)	Figure (2)
6	WI	nat will happen when:	
	– W	hen the ball of newton cradle is	s raised up
7	Wŀ	at is the importance of:	
	1	Curved mirrors in solar oven.	
	2	T.V	

Choose the correct ar	swer:	
 Coal is the source of enal gas oven petroleum oven Water of rivers stores gas Kinetic energy Electric energy 	nergy in b. fire place d. solar heater	e top of slopes.
 Slow objects cause a. great damage that cause b. great damage that cause c. small damage that cause d. small damage that cause The distance between kilometers. a. 54 c. 44 	an't be repaired an be repaired an be repaired an't be repaired	Million
Write the scientific ter	m:	
① It is the moment of cras	hing of two objects to	gether.
It is the energy that will	not run out faster than	n consuming it.
6 Energy neither created r	or destroyed.	(
It is made up of grass, co	rn or wood chips.	(

3	Co	mplete the following:	
	0	Cars stop, when the fuel	
	0	and	are examples of
	•	biofuel.	
	3	During collision, The air bag	
	0	The input energy in running iser	nergy
1	Co	rrect the underline words:	
		heavy objects always cause damage less than	light objects.
	0		()
		Burning of biofuel cause air pollution & globa	l warming.
	0	bulling of Electrical	(,,,,,,)
	3	Increasing the number of blades is better.	
	4	dynamo changes electric energy into kinetic e	nergy.
			()

Choose from the below figures the most effective turbine & the reason:





Law of conservation of energy

- What will happen when:
 - The sun disappears suddenly
- B Give reason for:
 - Any energy chain starts with the sun.

	c	100se the correct answ	/er:
	0		of renewable source of energy except
		a. solar energy c. coal	 b. wind energy d. water falls nple (s) of biofuel.
	0	a. Petroleum	b. cornd. Natural gas
	6	source of energy. a. Electric heater	b. Solar heater
	()	c. Gas oven	d. No correct answer hars operated by b. long-term batteries d. b & c
2	Wı	rite the scientific term	
	0	It helps farmers planting	crops that need hot weather in winter.
	2 3 4	It burns inside a car engin	e to make the car moves. () ergy into electric energy. ()
3	Col	mplete the following:	
	0	When water of rivers fa	lls from high slopes, potential energy
	2	Solar cells change	energy to energy.

Model Ex	am .		
6	cars are light in weight.		
0		are example	is of
4 C	fossil fuel. orrect the underlined words:		
0	Electric vehicles cause climate change.	(
0	The outcoming energy of battery is chemic	al energy.	
•	Fossil fuels are extracted from mountains.	(1
0	Petroleum is an example for biofuel.	()
5 Stu	dy the following figure then complete	e the following	ng:
	The boy uses a to hit the ball. The energy transfer from the to the form the feel warmth of the sun at night.		7
	t is the importance of:		
② S	olar energy		
	nume or a promission of communities married to the con-		

0 5	hoose the correct an				
0	Produced from the decomposition of plants or trees.				
	a. Petroleum	 b. Natural gas 			
	c. Coal	d. Benzene			
0	As object's speed increases, its kinetic energy .				
·	a. Increases	b. decreases			
	c. remains constant	d. no correct answer			
3	Solar heaters are placed on				
	a. streets.	b. markets.			
	c. bathroom.	d. top of building.			
4	•				
	a. charge them	b. change them			
	c. burn them	d. a & b			
a w	rite the scientific ter	m:			
9					
1	It is a gas region at the edge of the sun that emits light and hear				
			()		
2	The main source of fuel.		()		
3	It absorbs the energy of	()			
4	Energy that consumed t	()			
Co	manlote the fall-wi-		,		
	mplete the following	:			
1	is used in f	ire place to produce heat	energy.		
2	is the energy produced due to friction				

Mode	l Exam	n			
	Solar cars are in weight.Fast rubber ball makes sound we than slower ball.				it hit by racket
4	Correct the underlined words:				
	1	The wind rotates	the blades of water	mills.	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
,	2	Coal is the oldest	fuel that used all ov	er the world	.
					(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	3	A crash investiga	tor sees a car crash a	s a joke .	(
	4	When fuel runs o	ut, the car moves.		(
5	W	nat is the type	of fuel:		
		Figure (1)	Figure (2)	Figure	(2)
6	Wh	nat meant by:			
	 Renewable source of energy 				
	•				
7	Ho	w to reduce bu	rning fossil fuel:		

a C	ho	ose the correct a	inswer:			
7		depends on renewable source of energy.				
(1))	a. Petroleum oven	 b. Gas oven 			
		c. Solar cell	d. Flash light			
6	2	From the disadvantages of over use of fossil fuel is (are)				
-		a. cutting trees	b. removal of fores			
		c. air pollution	d. a & b			
•	3	used to	o move things.			
		a. Dynamo	b. Motor			
		c. Hair dryer	 d. electric heater 			
(4	The car with speed has the highest kinetic energy				
		a. 100 km/h	b. 80 km/h			
		c. 60 km/h	d. 40 km/h			
2	W	rite the scientific	term:			
	1	The vehicle that do	esn't need any fuel or elec	tricity.		
				()		
	2	It is the energy produced from burning fossil fuel. (
	3	The amount of it on the earth is limited.		()		
	4	The incoming energy in electric heater. ((.,,,,,,,,,)		
3	C	Complete the following:				
	1	When two cars collide in the direction, the damage				
		will be less severe.				
	2	is the energy stored in food.				

111001	ei exai	11		
	3	Coal is used in	to produce el	ectricity.
	4	Heavy objects have	energy.	
4	Co	rrect the underli	ne words:	
	1	The output energy	in a calculator is the so	olar energy.

	2	When a car hits a bo	oy, he will survive.	(
	3	wood is a a non-ren	ewable source of ener	gy. (
	4	Burning fuel produc	es light energy.	(
(5)	Arı	ange the following	ng energy chains fr	om start to end:
		uring running:	0.	
	4	anng running.		
	-		2	-
			The state of the s	
	9		linning A mail	
	Ch	emical energy	Kinetic energy	Solar energy
	10/6	oá maganá bu		
0	vvn	at meant by:		
	- Sc	olar panels		
	••			r.
7	Giv	e reason for:		
•				
	 When you touch an electric lamp, you feel hot. 			
	•••			
	•••	•••••		***************************************

	Choose the correct answer:					
	0	Modern windmills are	than old win	dmills.		
	0	a. taller	b. shorter			
		c. heavier	d. no correct answer			
	0	Heat energy is in electric iron.				
	0	a. consumed	b. resulted			
		c. lost	d. destroyed			
	•	is the fuel	made of living organis	ms that can be		
	3	planted.				
		a. Fossil fuel	b. Biofuel			
		c. Petroleum	d. Gasoline			
	4	collision, the air bag deflates fast.				
		a. Before	b. During			
		c. After	d. no correct answer	1		
9	Wi	Write the scientific term:				
9	 Vehicles that have batteries must be charged. ((
				•		
			Commence.	()		
	3	The amount of it on the		()		
	4	It helps farmers planting	crops that need hot we			
				()		
Complete the following:						
	0	It is better to	the number of blades	inside turbine.		

	_	A spacecraft needs more than Month to reach mars,
	2	You feel when you approach your hand to the
	(3)	electric lamp.
	4	The rate of formation of petroleum is than the rate
		of its consumption.
4	Co	rrect the underline words:
	0	Motor changes kinetic energy into electric energy.
		()
	2	Any energy chain ends with the sun.
	3	To get fossil fuel, it requires cutting trees & removal of forests,
		(
	4	We must light up electric bulb and electric devices if we don't
		need it.
(5)	Mer	ntion the advantages and disadvantages of solar vehicles:
		The second secon
		Advantages Disadvantages
	••••••	
••	•••••	
	••••••	
6	Wh	at is the importance of:
	– Wr	recking ball
	•••	
¥	•••	

Model Exam

Model Exam 10

Choose the correct answer:

- Fast objects cause
 - a. great damage that can be repaired
 - b. great damage that can't be repaired
 - c. small damage that can be repaired
 - d. small damage that can't be repaired
- The surface of the sun
 - a. is solid such as moon
 - b. is gas such as moon
 - c. isn't solid such as moon
 - d. isn't gas such as moon
- Which of the following statements is correct?
 - a. Energy can't be changed from one form to another.
 - b. Energy can be changed from one form to another.
 - c. Energy may be lost or destroyed.
 - d. Energy can be created.
- is the oldest fuel used all over the world.
 - a. Coal
 - b. Wood
 - c. Petroleum
 - d. Natural gas

2	W	rite the scientific term:		
	0	It is the energy that will not run out faster than con	nsuming it. (1
	2	The energy produced due to friction.	()
	3	It is used in cars to keep the driver's body from moduring collision.	ioving forw _{are}	1
	4	Energy that consumed from hand bell.	()
3	Co	mplete the following:		
	1	is used to knock down parts of a bui	lding.	
	2	Electricity transfers to cities through	•	
	3	The wheels of the car when fuel b	urns inside ca	1
		engine.		
	4	and ar	e examples o	ſ
		fossil fuel.		
4	Co	rrect the underline words:		
	1	Fuel powered-cars need to be charged.	()
	2	Life continues on the earth in the absence of the	sun.	
			()
	3	Charcoal is made up of grass, corn or wood chips	5. ()
	4	Burning of biofuel cause air pollution & global w	arming.	
			(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,)

Complete the following table:

Device	Source of Energy	Kind
Flashlight		
Solar heater		
Fire place		

6 Compare between:

Device	Biofuel	Fossil fuel
Туре		
Importance		
Disadvantages		
Examples		

Unit@ Concept Lesson

- Choose the correct answer:
- a
- 63 d

- 2

- (3) d
- 9 b

- (I) b
- n b

- O d
- (B) d

- 0
- (II) c
- B d
- Put (/) or (X):

- Fill in the gaps using the following words:
 - Solar cells
 - O TV
 - **6** consumed
 - produced
 - 6 electric heat
 - 6 chemical
- Write the scientific term:
 - Electric Energy
 - Solar Energy
 - Radio
 - Electric Heater
 - Solar Cell
 - Solar Heater
 - **Batteries**

- Complete the following:
 - TV, cellular phone and radio
 - TV, cellular phone and elect
 - consumed produced
 - Solar cells
 - 6 electric sound and light
 - Batteries

 - 8 electric heat kinetic senson
 - 9 plugs electric chargers
 - (II) batteries
- Classify the following devices according to devices need for solar energy or electric energy

Devices that need electric energy

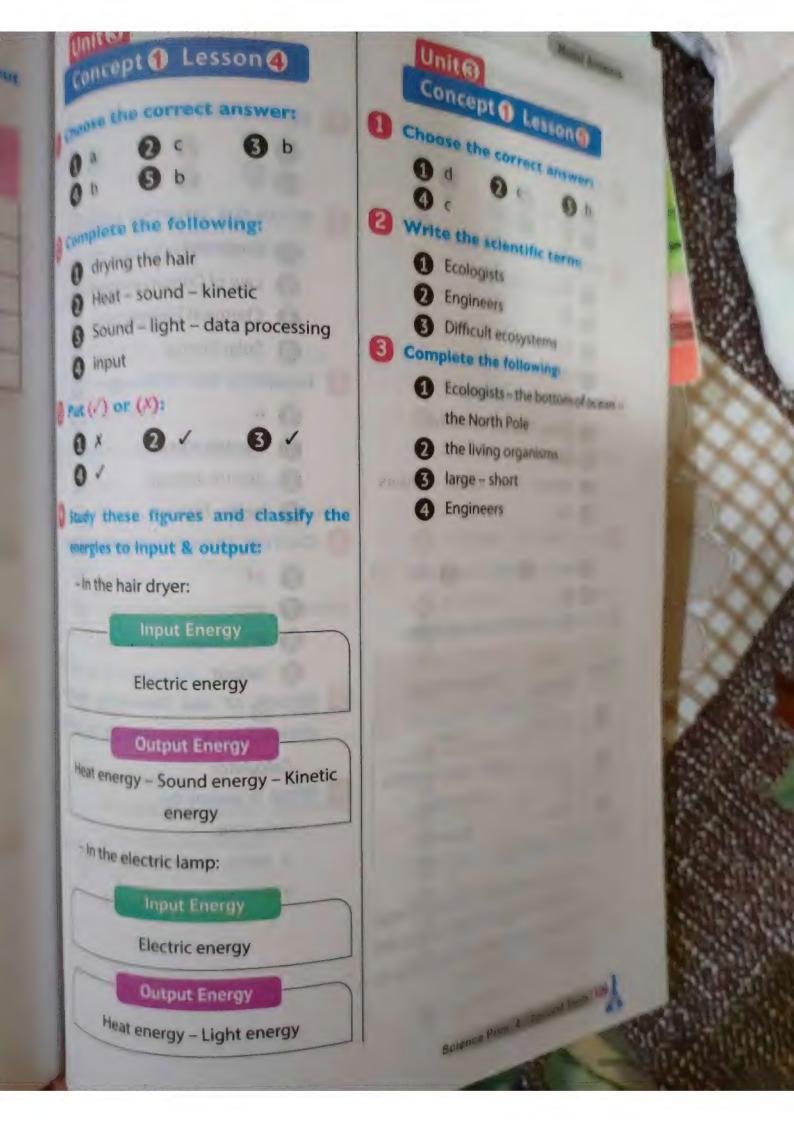
Electric lamp

Mobile phone

Devices that need solar energy,

Calculator

Solar cells



Model Exam Unit @ Concept ()

- Choose the correct answer:

- Write the scientific term:
 - 1 Chemical Energy
 - 2 TV
 - Heat Energy
 - A Ecologists
- Complete the following:
 - nove do their functions
 - Coal
 - 3 electric heat kinetic sensors
 - 4 hot
- Put (√) or (X):
- 2 1

- Complete the following table:

Figure	Input Energy	Output Energy		
0	Chemical	Kinetic		
0	Electric	Light - Sound - Data Processing		
0	Solar	Electric		

- What is meant by:
 - Law of Conservation of Energy: Energy is neither created nor destroyed but it can be changed from one form to another.

Model Exam ② Unit @ Concept ()

- Choose the correct answer

- Write the scientific term:
 - Engineers
 - Law of Conservation of Energy
 - Chemical Energy
 - Solar Energy
- Complete the following:
 - a 6
 - 2 electric heat
 - 3 electric energy
 - A heat friction
- Correct the underlined words
 - 6 54
 - stop
 - impossible
 - 4 output
- Which of the following device depend on solar energy to work
 - Calculator
- What is meant by:
 - Solar Cell:
 - A device that changes solar energy into electric energy.



1 Choos

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3 corre 5

> 2 1 6 n

5

6 f 3 Comp

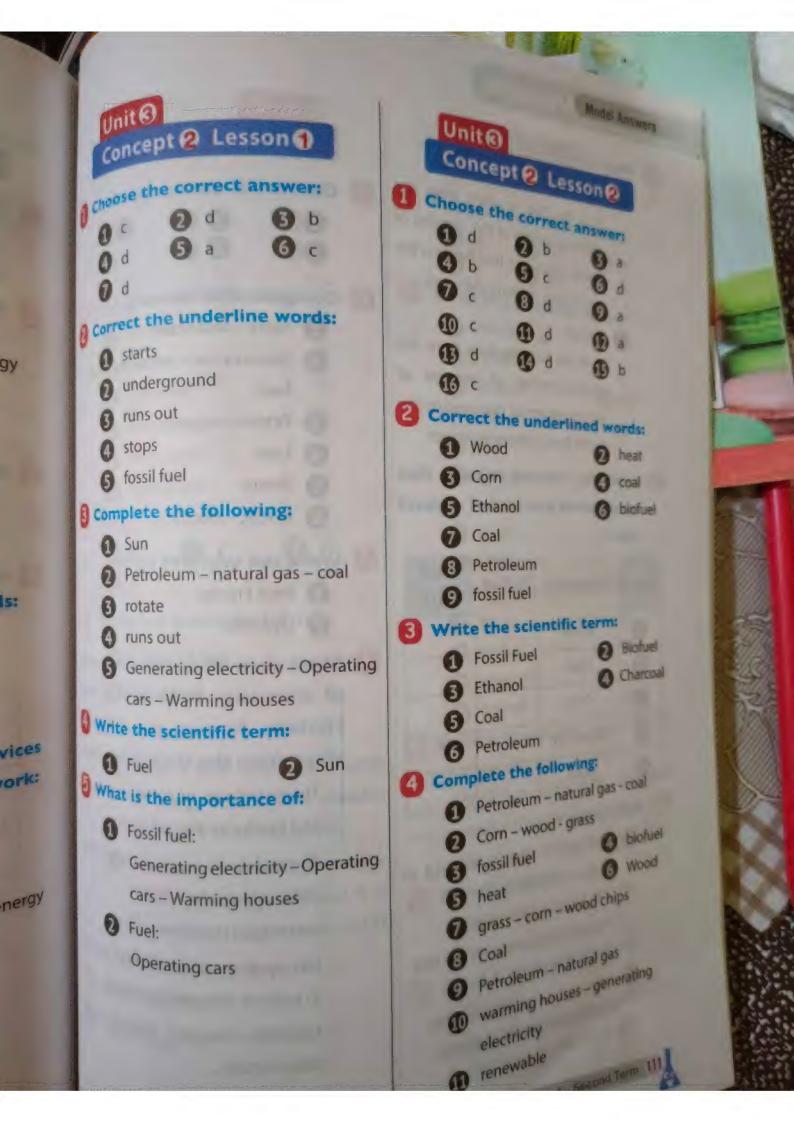
5

(E3) IN

6

Write

5 What i



What is meant by:

- Fossil Fuel: It is the fuel resulting from the decomposition of the remains of living organisms that lived on the earth from millions years ago.
- Biofuel: It is the fuel resulting from the decomposition of remains of living organisms that lived on the earth from millions years ago.
- Label the following figures, then classify them into biofuel or fossil fuel:

Figure	Represents	Biofuel	Fossil Fuel
0	Wood	4	
2	Coal		1
8	Corn	1	
0	Natural gas		V
9	grass	1	

Give reason for:

- -Because it starts to run out as soon as we use it.
 - Because the rate of our consumption exceeds the rate of its formation.
- Because it is renewed with the continuous growth of plants.

Unit@

Concept & Lessons

Choose the correct answers

2 Complete the following

rocks - sediments

temperature - pressure fuel

Petroleum - coal

heat

Steam

kinetic - electric

Write the scientific term:

Heat Energy

2 Dynamo

These steps represents general of electricity in electric part stations. Arrange the follow steps from the start to the El

> - The petroleum or natural gas to and produces thermal energy.

> - Thermal (heat) energy is used to water and produce steam.

- Steam starts to move turbines

- The dynamo converts kinetic elle in turbines into electric energy.

- Electricity transfers through 5. wires to cities.

Concept @

Choose the co

Complete th

1 limited

less 0

differen diatom

tiny - I renew

put (/) or

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1 Diat

2 Fos

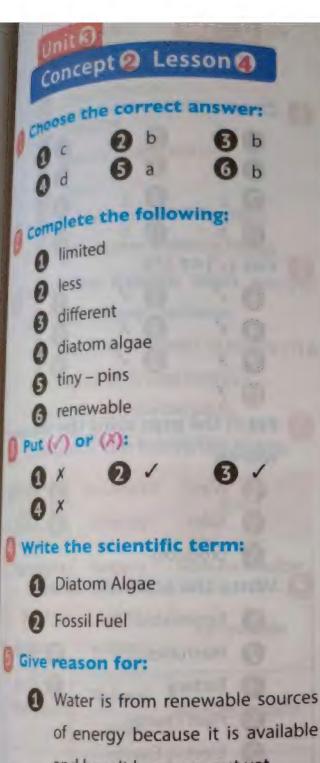
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Look,

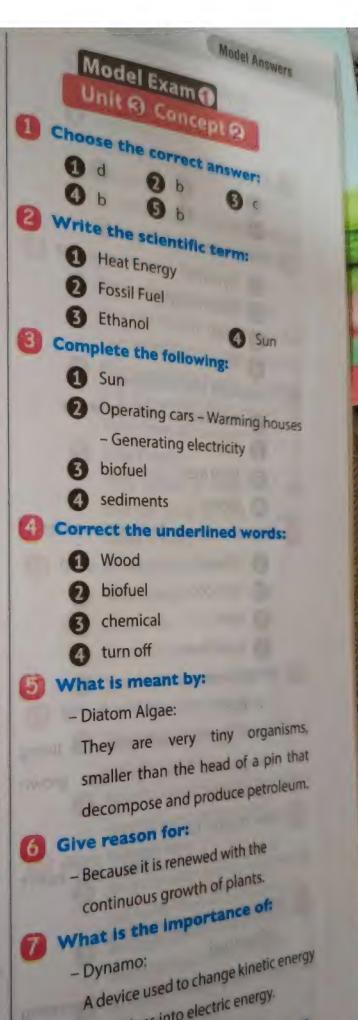
Look



- and hasn't been run out yet.
- Petroleum is from non-renewable sources of energy because it is limited and it begins to run out as soon as we use it.

Look at page 63.

Look at page 64.



of turbines into electric energy.

Model Exam @ Unit @ Concept @

Choose the correct answer:

Complete the following:

Dynamo

Diatom Algae

Coal

Puel

Complete the following:

1 Petroleum - coal - benzene

7 rotate

fossil fuel

Steam

Correct the underlined words:

Ethanol

nuns out

(3) heat

fossil fuel

What is meant by:

- Biofuel:

It is the fuel made from the living organisms that can be grown (planted).

Give reason for:

- Because it is available and hasn't been run out yet.

What is the importance of:

- Fossil fuel:

Generating electricity - Operating cars - Warming houses.

Unit@

Concept @ Lesson

Choose the correct answer

2 c

7) c

8

b 10

m b

2 Put (/) or (X):

60 /

2 1

7 X m x

Fill in the gaps using the follows: words:

(1) Wind

2 chenia

6 taller

(A) Coal

produces

Write the scientific term:

Renewable Source of Energy

Machines

(3) Windmi

Battery

G Coa

6 Heat Energy

Electric Energy

Complete the following:

A source of energy

2 Renewable source of energy

3 Waterfalls and wind energy

4 Petroleum and natural gas

5 make their life easier & do tasks task

6 Grind grains. 0 shorts

1 less than

a source of energy

114 Science Prim. 4 - Second Term

chem 10 non-

O elec 13 fires

1 elec 10 coa

Study

the foll O TI

Comp

Device

Flashlig

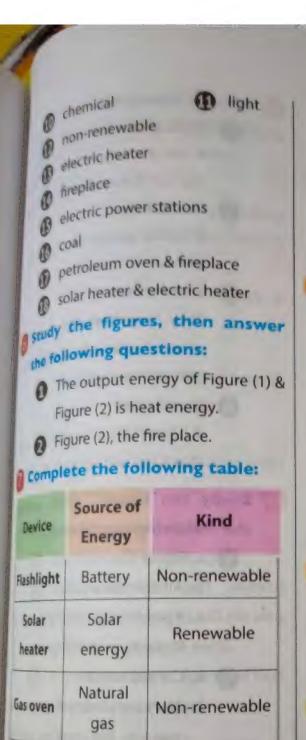
Solar

heate

Gas ov

Firepl

Elect hea



What is the importance of:

Coal

Electric

energy

1 Machines:

Fireplace

Electric

heater

ng

cal

ill

People use them to make their life easier and do tasks faster.

Non-renewable

Renewable

2 Windmills:

They are used for grinding grains.

Muon Annum Solar panels They are used to generate electrons 4 Flashlight A device used to get light energy Fireplace: A device used to get heat energy for warming houses. What is meant by: Renewable Source of Energy: It is the energy that will not run out faster than us consuming it. Non-renewable Source of Energy: It is the energy that will run out faster than us consuming it. Solar Panels: They consist of small solar cells and are used to light up street bulbs in cities. Give an example for: Solar energy Petroleum Electric heater Fireplace What will happen when: 1 The internal parts of the mill move and grind grains. Kinetic energy transfers to another windmill and grind grains Give reason for: Because solar energy will not run out faster than us consuming it. Because petroleum will run out

faster than us consuming it.

tasks done faster.

To make their life easier and get

Unit(9)

Concept & Lesson @

Choose the correct answer:

- b a
- **9** d D b

b

- (1) d
- 1 d

- 13 p
- Put (//) or (X):

- X
- 6 1

- X
- 8 X

Write the scientific term:

- Photosphere
- Greenhouse
- Curved Mirrors
- Solar Heater
- Solar Panels
- 6 Solar Energy

Complete the following:

- 1 hydrogen helium
- 2 photosphere
- 3 light heat
- damaged (5) die
- 6 radioactivity
- Greenhouse
- 8 Curved mirrors
- top of buildings
- solar cells
- solar electric heat
- solar

What is meant by:

- Photosphere:
 - It is a gas region at the the Sun that emits light and
- 3 Solar Energy:
 - It is the energy produced the sun.
- Solar Panels:
 - They consist of a large open of small solar cells & are was generating electricity.
 - A Greenhouse:
 - It helps farmers in planting the that need hot weather in week

Study the figures, then answer the following questions:

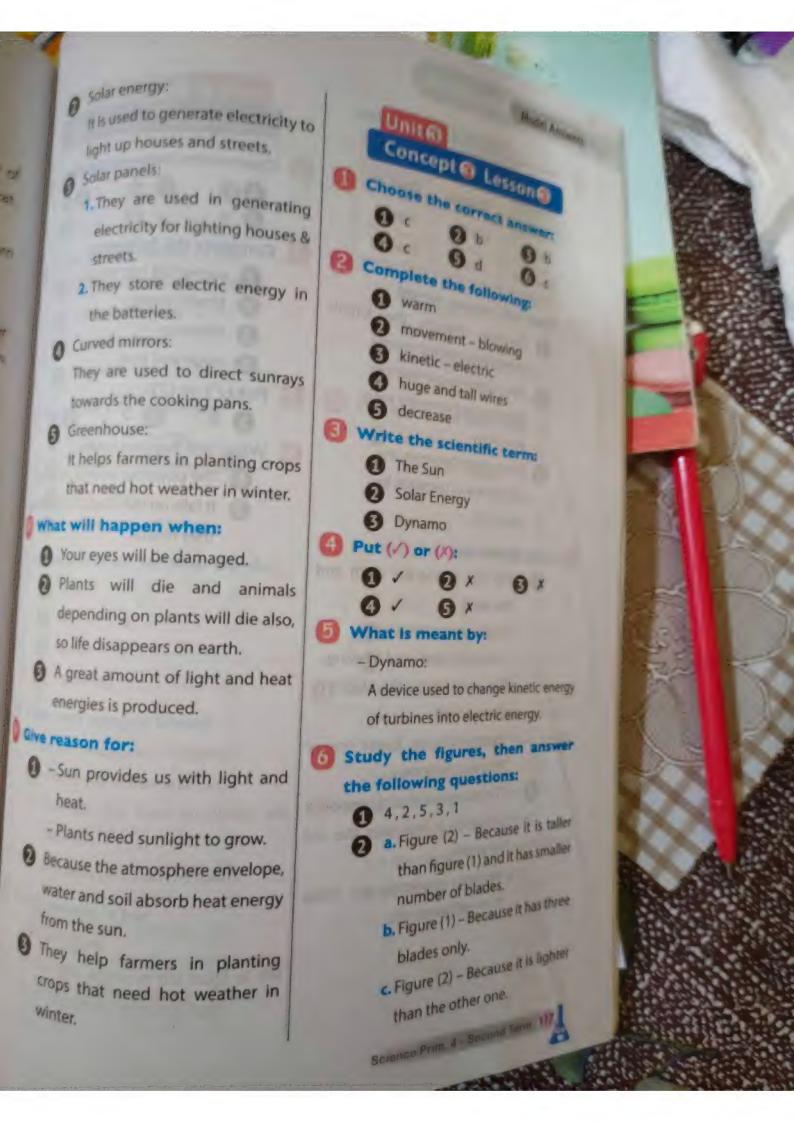
- 1 a. Figure (2)
 - b. All animals will die.
 - c. It provides us with light and tell & plants need it to grow.
 - a. Curved mirrors
 - b. They are used to direct suna towards the cooking page 1 cooking.
 - b. heat energy 3 a. solar energy
 - c. top of the buildings
 - a. solar energy
 - b. batteries solar cells

What is the importance of

The sun:

It provides us with light and have and plants need it to grow.

- 3 Solar energy It is used to light up ho
 - Solar panel 1. They ar
 - electric streets
 - 2. They the ba
 - Curved r They ar
 - toward
 - Greenh It help that n
 - What will
 - Your
 - Plant depe
 - so li Ag
 - ens



Answers

Complete the following table:

Device	Input Energy	Output Energy
Motor	Electric	Kinetic
Dynamo	Kinetic	Electric

8 What will happen when:

- 1 Dynamo changes the kinetic energy into electric energy.
- The turbine becomes more effective and generate more electricity.
- The turbine becomes less effective and generate less electricity.

Give reason for:

- 1 The sun warms the earth and the wind.
 - Solar energy causes air movement and wind blowing.
 - The wind rotates the blades of the windmill.
 - Dynamo changes kinetic energy into electric energy.
- 2 The number of blades in modern windmills is less than the old windmills.
 - Modern windmills are taller than old windmills.

Unit@

Concept 3 Lesson

- Choose the correct answer
 - D b 2
 - 4 d

Omplete the following:

- 1 converted into kinetic energy
- 2 kinetic energy
- 3 increases
- A huge and long

8 Put (√) or (X):

- 1 ×
- 2 /
- **3** x

What will happen when:

- 1 The potential energy increases
- 2 It falls on the blades of turbines: they rotate.

Moc

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2

) WI

Choose the correct answer:

white the scientific term:

Renewable Source of Energy

O Chemical Energy

3 Greenhouse

O Solar Energy

complete the following:

a source of energy

Fireplace - petroleum oven

A light - heat

1 movement - blowing

Correct the underlined words:

1 taller

Natural gas

3 Wind

4 incoming

What will happen when:

The sun disappears suddenly:

1. Plants will wither and die.

2. Animals that feed on plants will die.

3. Life disappears on the earth.

What meant is by:

-Photosphere:

It is a gas region at the edge of the Sun that emits light and heat.

Model Answers Model Exam@

Unit ® Concept ® 1 Choose the correct answer:

2 Write the scientific term:

Machines

Coal

Photosphere

Solar Panel

Complete the following:

1 top of buildings

hydrogen - helium

taller

4 Fireplace

Correct the underlined words:

Some

2 Wind

3 Dynamo

4 potential

Give reason for:

- Because the atmosphere envelope. water and soil absorb heat energy from the sun.

What is meant by:

 Renewable Source of Energy: It is the energy that will not run out faster than us consuming it.

Model Exams

Model Exam

- Choose the correct answer:
- 2 c

- Write the scientific term:
 - Photosphere
 - Solar Energy
 - 3 Law of Conservation of Energy
 - Wrecking Ball
- Complete the following:
 - 6
 - 2 electric heat
- 63 light
- A chemical devices (toy cars)
- Correct the underlined words:
 - 1 Ethanol
 - Fuel-powered
 - 3 starts
- 4 output
- Mention the input and output energies of the following:

Figure	Input Energy	Output Energy
Hair dryer	Electric	Heat – Sound – kinetic
Electric lamp	Electric	Light – Heat
Playing football	Chemical	kinetic

Mhat is meant by:

- Renewable Source of Energy; It is the energy that will not run on faster than us consuming it.
- Give reason for:
 - To make their life easier and get lack done faster.
- (3) What is the importance of:
 - -It helps farmers grow plants need warm weather in winter.

Model Exam 2

- Choose the correct answer:
 - 1 b
- **2** a

- Write the scientific term:
 - Wrecking Ball
 - Electric Bulb
 - Kinetic Energy
 - 4 Fuel
- Complete the following:
 - more more
 - 2 electric sound heat kinetic
 - Climate changes
 - Petroleum Natural gas
- 4 Correct the underlined words
 - ¶ Fuel-powered
 - fireplace

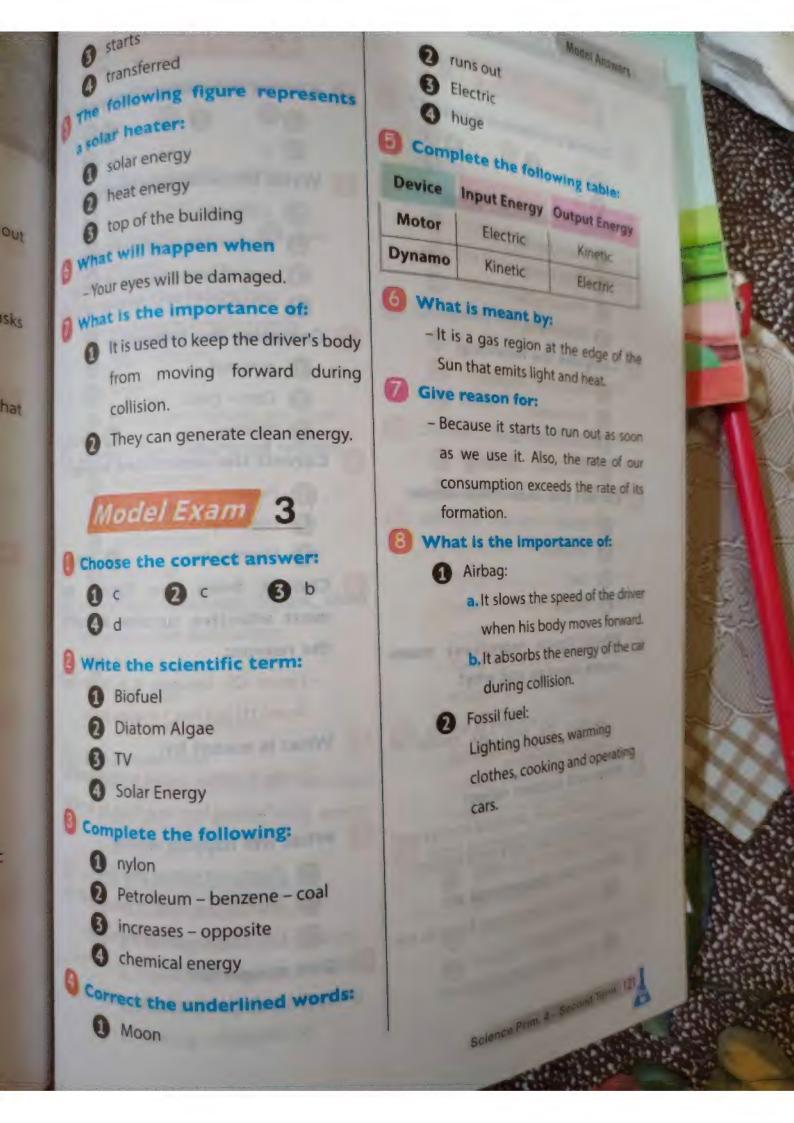
- 3 starts @ transferred
- o The following figu a solar heater:
 - 3 solar energy
 - 2 heat energy
 - 3 top of the build
 - What will happen - Your eyes will be d
 - What is the impo
 - 1 It is used to kee from moving collision.
 - 2 They can gene

Model Ex-

- Choose the corr

- Write the scien
 - Biofuel
 - 2 Diatom Alga

 - 4 Solar Energy
- Complete the
 - 1 nylon
 - 2 Petroleum
 - 3 increases -
 - 4 chemical e
- Correct the u
 - 1 Moon



Model Exam 4

- Choose the correct answer:
- 2) b
- Write the scientific term:
 - Solar Panels
 - Solar Energy
 - Wrecking Ball
 - 4 Heat Energy
- Complete the following:
 - 1 hydrogen helium
 - petroleum
 - electricity fuel
 - 4 movement blowing
- 4 Correct the underlined words:
 - Some
 - different
 - 3 Coal
 - 4 deflates
- 5 Which figure represents more severe damage and why?
 - Figure (2)
 - Because the two cars collide in opposite directions.
- What will happen when:
 - The ball stores potential energy and it doesn't have any kinetic energy.
- What is the importance of:
 - 1 To direct the sunrays towards the cooking pans.
 - To transfer light and sound.

Model Exam 5 Choose the correct answer 2) b

- Write the scientific term;
 - Collision
 - Renewable Source of Energy
 - Law of Conservation of Energy 4 Ethanol
- Complete the following:
- 1 runs out
 - Corn grass wood
 - inflates
- Correct the underlined words:
 - more
 - fossil fuel
 - 3 Decreasing

4

Corr

(2)

3

Stuc

com

1

- B

- Choose from the figures the most effective turbine & dark the reason:
 - Figure (2), because it is taller than figure (1) & it has 3 blades only.
- What is meant by:
 - Energy is neither created nor destroyed by it is changed from one form to another
- What will happen when:
 - 1 Plants will wither and die.
 - Animals that feed on plants will die
 - 3 Life disappears on the earth.
- 8 Give reason for:
 - Because the Sun is the main source of energy.

Mel Exam 6 of the correct answer: 0 0 b on the scientific term: A Grenhouse ↑ Ecologists O Dynamo

moiete the following:

a changes to kinetic energy

a solar - electric

A Solar

nical

Of-

che

rify

han

j bul

ther-

die.

urce

A Petroleum - natural gas - coal

ared the underlined words:

A Fuel-powered

Incoming

anderground

fossil fuel

the following figure, then expiete the following:

(i) They don't seed on 14 (

bat-ball

ngeases - different.

the reason for:

feauxe the atmosphere envelope, seler and soil absorb heat energy from the sun.

Met is the importance of:

It is used to move objects.

Planting inside greenhouses

b. Operating irrigation machines

c Warming houses d. Cooking

€ Heating water

Model Exam 7

Choose the correct answer:

0 c 2 a 3 d

Write the scientific term:

1 Photosphere

7 The Sun 3 Airbag

4 Solar Energy

Complete the following:

1 Coal

2 Heat energy 3 light

4 louder

Correct the underlined words:

1 windmills 2 Wood

3 puzzle 4 stops

What is the type of the fuel:

- Figure (1): Renewable source of energy.

- Figure (2): Non-renewable source of

- Figure (3): Non-renewable source of energy.

6 What is meant by:

- Renewable Source of Energy: It is the energy that will not run out faster than us consuming it.

How to reduce burning fossil fuel:

1 Walking or driving a bike instead of driving cars.

Using public transportations.

Turning off electric bulbs and electric devices if we don't need them.





Model Exam 8

Choose the correct answer:

2 c

Write the scientific term:

- Solar Vehicle
- 2 Heat Energy
- 3 Fossil Fuel
- 4 Electric Energy

Complete the following:

- 1 same
- Chemical energy
- 6 electric power stations
- 4 high

Correct the underlined words:

1 input 2 bike

3 Coal

4 heat

Arrange the following energy chains from the start to the end:







What is meant by:

- Solar panels

They consist of a large number of small solar cells. They change solar energy into electric or heat energies.

Give reason for:

- A part of the electric energy changes to heat energy. So you feel hot when you approach your hand to it.

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Model Exam 9

Choose the correct answer

2 b

Write the scientific term:

- 1 Electric Vehicle
- 2 Cricket Game
- Fossil Fuel
- 4 Greenhouse

Complete the following:

decrease

3 hot

4 less

Correct the underlined words:

1 dynamo

2 starts

63 biofuel

4) turn off

Mention the advantages and disadvantages of solar vehicles:

Advantages

1 They don't need fuel.

2 They don't need electricity.

3 They don't cause climate changes.

4 They are light in weight.

The amount of energy it gets from the sun is smaller than what it gets from gasoline or electricity.

What is the importance of:

- It is used by construction workers to knock down parts of buildings.

Mode

1) Choose th

4 2 Write the

Rene Hea

Seat

Kine

Complet Wre

hu

rot

Pet

Correct

Ele

di Et

4) fo

Compl

Device

Flashlight

Solar

heater Fireplace

0 b

Write the scientific term: Renewable Source of Energy

1 Heat Energy

3 Seatbelt

Kinetic Energy

Complete the following:

Wrecking ball

2 huge wires

3 rotates

off

rs to

4 Petroleum – natural gas – coal

Correct the underlined words:

1 Electric cars

2 disappears

3 Ethanol

A fossil fuel

Complete the following table:

Device	Source of energy	Source of Energy Kind	
Flashlight	Chemical energy	Non-renewable	
Solar heater	Solar energy	Renewable	
Fireplace	Coal	Non-renewable	

6 Compare between:

P.O.C.		Biofuel		ossil Fuel	
Its type	Its type Renewable		Non-renewable		
	1.	. Lighting		It is	
	houses		a renewable		
	2.	Warming	SC	source of	
Importance		houses	e	nergy.	
	3.	Cooking		60-00	
	4	. Operating	1		
F-50-F-61-67-22		cars			
Displaying the same of the sam	1	t causes:	1	To get it, it	
CONT UNISHED	1	. Air	1	requires:	
Disadvantag	es	pollution		1. Cutting trees	
Jais		2. Global		2. Removal of	
		warming		forests.	
		1. Petroleu	m	1. Wood	
Para la constante de la consta		2. Natural		2. Grass	
Example	es	gas		3. Corn	
المساوية		3. Benzene		4. Wood chips	
		4. Coal			